CFD-V77S

SERVICE MANUAL

AEP Model
E Model

Ver 1.1 1999. 05

CD Section	Model Name Using Similar Mechanism	CFD-V17
	CD Mechanism Type	KSM-213CDM
	Optical Pick-up Name	KSS-213C
Tape deck Section	Model Name Using Similar Mechanism	CFD-V17
	Tape Transport Mechanism Type	MF-V10-117

SPECIFICATIONS

CD player section

System	Compact disc digital audio system
Laser diode properties	Material: GaAlAs Wavelength:780 nm Emission duration : Continuous Laser output : Less than 44.6 µW (This output is the value measured at a distance of about 200 mm from the objective lens surface on the optical pick-up block with 7 mm aperture.)
Spindle speed	200 r/min (rpm) to 500 r/min (rpm) (CLV)
Number of channels	2
Frequency response	20 – 20,000 Hz + 1/-2 dB
Wow and flutter	Below measurable limit

Radio section

Frequency range	FM Italy	87.5 – 108 MHz
	Other European models and Saudi Arabia	87.6 – 107 MHz
	Other models	87.6 – 108 MHz
	MW Italy	526.5 – 1,606.5 kHz
	Other European models and Saudi Arabia	531 – 1,602 kHz
	Other models	530 – 1,605 kHz or 531 – 1,602 kHz
	SW1	2.3 – 7 MHz
	SW2	7 – 22 MHz
IF	FM : 10.7 MHz AM/MW : 455 kHz	
Aerials	FM : Telescopic aerial MW : Built-in ferrite bar aerial	

Cassette-corder section

Recording system	4 -track 2 channel stereo
Fast winding time	Approx. 120 s (sec.) with Sony cassette C-60
Frequency response	TYPE I (normal) : 70 – 10,000 Hz

General

Speakers	Full range : 10 cm dia., 6 Ω, cone type (2)
Outputs	Headphones jack (stereo minijack) For 16 – 68 Ω impedance headphones
Maximum power output	4.5 W + 4.5 W
Power requirements	For CD radio cassette-corder
	Europe
	230 V AC, 50 Hz
	Other countries
	110 – 120, 220 – 240 V AC selectable, 50/60 Hz or 230 V AC, 50 Hz
	9 V DC, 6 R20 (size D) batteries
Power consumption	AC 25 W

— Continued on next page —

CD RADIO CASSETTE-CORDER

MICROFILM

SONY®

Battery life	For CD radio cassette-corder:
	FM recording
	Sony R20P : approx. 3.5 h
	Sony alkaline LR20 : approx. 10 h
	Tape playback
	Sony R20P : approx. 1.5 h
	Sony alkaline LR20 : approx. 5 h
	CD playback
	Sony R20P : approx. 1 h
	Sony alkaline LR20 : approx. 4 h
Dimensions	Approx. 420 × 165 × 256 mm (w/h/d) (16 5/8 × 6 1/2 × 10 1/8 inches) (incl. projecting parts)
Mass (incl. batteries)	Approx. 4.2 kg (9 lb. 4 oz)
Supplied accessories	AC power cord (1)

Design and specifications are subject to change without notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer: Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

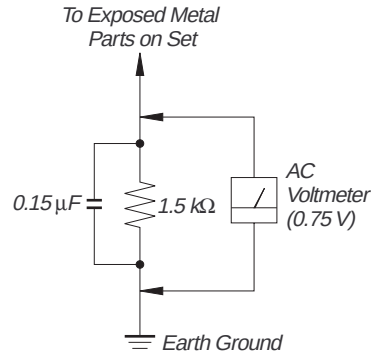

Fig. A. Using an AC voltmeter to check AC leakage.

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Notes on chip component replacement
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing
- Keep the temperature of soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
SERVICE NOTES

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

The following caution label is located inside the unit.

CAUTION	;	INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL	;	USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDS ÆTTELSE FOR STRÅLING.
VARO!	;	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE.
VARNING	;	LASERSTRÅLING NÄR DENNA DEL ÄR OPPNÅD OCH SPÄRREN ÄR URXOPPLAD.
ADVARSEL	;	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

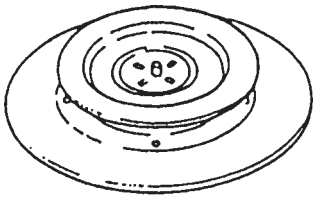
The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc., on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

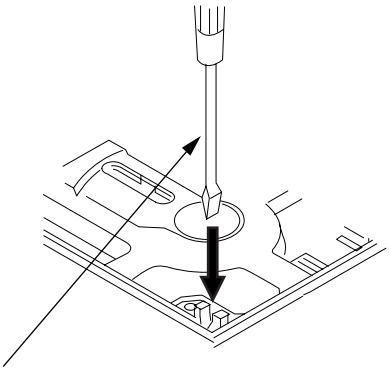
CHUCK PLATE JIG ON REPAIRING

On repairing CD section, playing a disc without the CD lid, use Chuck Plate Jig.
• Code number of Chuck Plate Jig : X-4918-255-1



LASER DIODE AND FOCUS SEARCH OPERATION CHECK

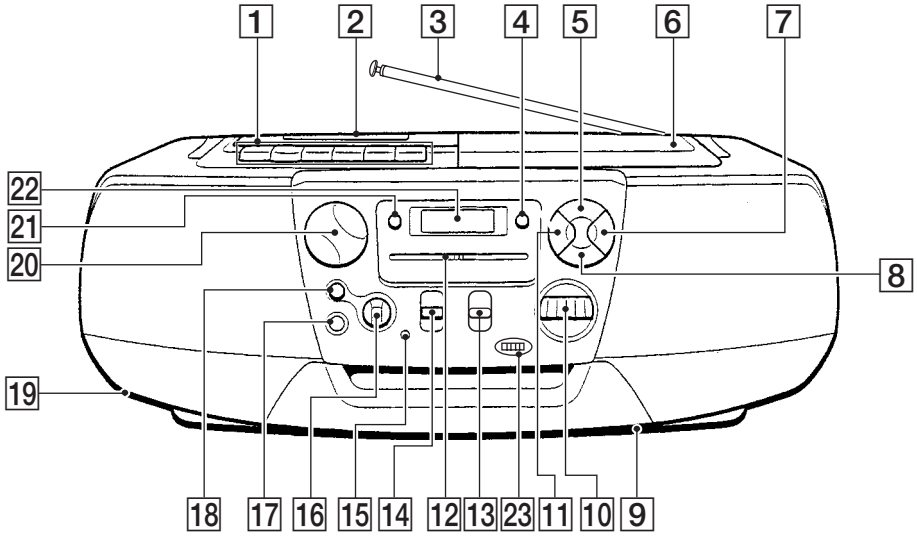
1. Press CD open knob.
2. Open the lid for CD.
3. Push on SWITCH (S801) as following figure.
4. Confirm the laser diode emission while observing the objecting lens. When there is no emission, Auto Power Control circuit or Optical Pick-up is broken.
   Objective lens moves up and down once for the focus search.



Insert a precision screw driver and push SWITCH(S801)

SECTION 2
GENERAL

LOCATION AND FUNCTION OF CONTROLS
MAIN UNIT



1 Tape operation buttons
- ● button
- ▷ button
- ◀◀ button
- ▶▶ button
- ■, ⏏ button
- ❚❚ button

2 CASSETE LID
3 FM rod antenna
4 DISPLAY ENTER button
5 CD ▶❚❚ button
6 CD ⏏ PUSH OPEN/CLOSE button
7 CD ▶▶❙ button
8 CD ■ button
9 Battery compartment
10 TUNE knob
11 CD ❙◀◀ button
12 DIAL
13 BAND switch
14 FUNCTION switch
15 OPR/BATT indicator
16 TONE knob
17 ∩ Phones jack
18 MEGA BASS knob
19 AC IN jack
20 VOLUME knob
21 PLAY MODE button
22 Information display
23 FINE TUNING knob

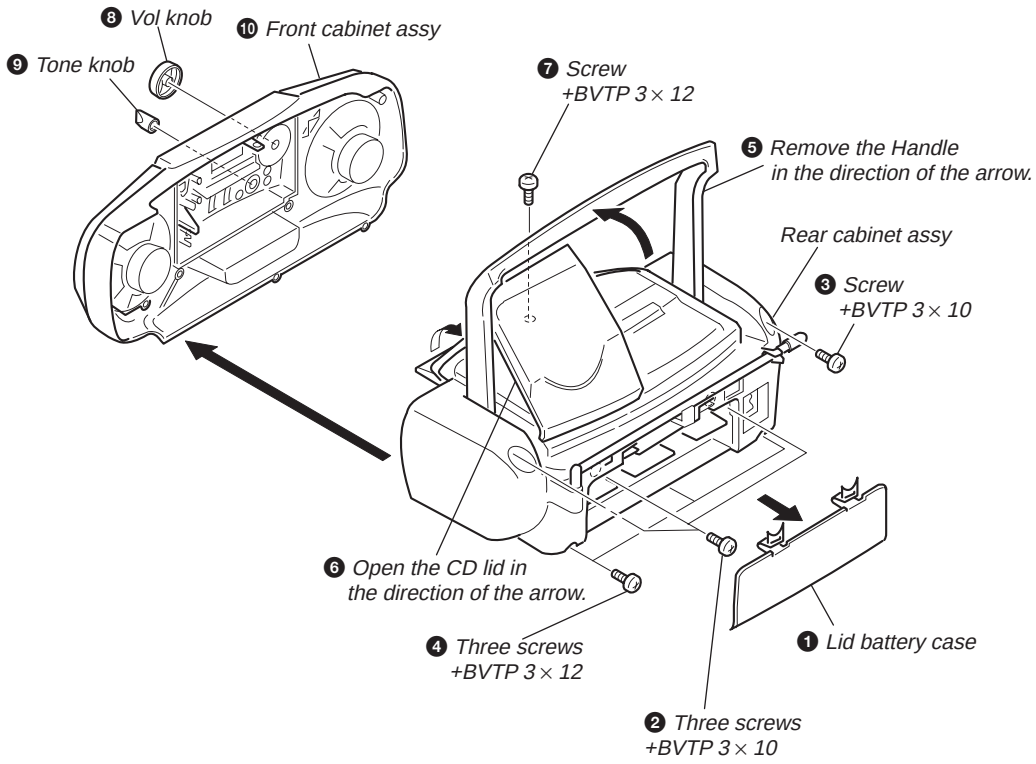
SECTION 3
DISASSEMBLY

• The equipment can be removed using the following procedure.

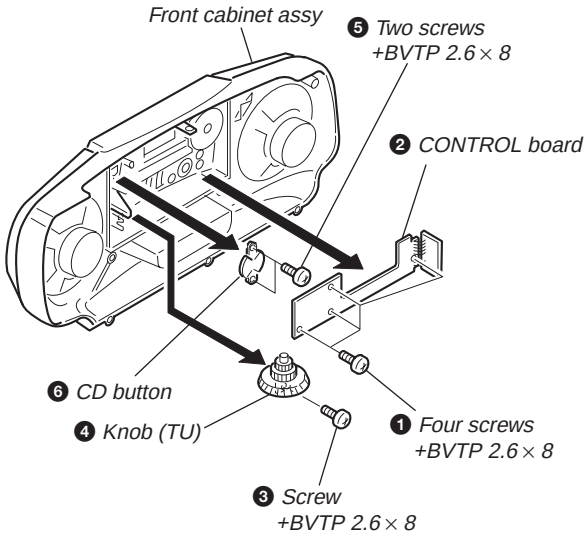
Set ➡ Front cabinet assy ➡ Cabinet (upper) assy ➡ Power, battery, half battery, voltage selection board
Front cabinet assy ➡ Control board
Cabinet (upper) assy ➡ Volume, lcd, mono st, main board ➡ Mechanism deck, optical pick-up section

Note : Follow the disassembly procedure in the numerical order given.

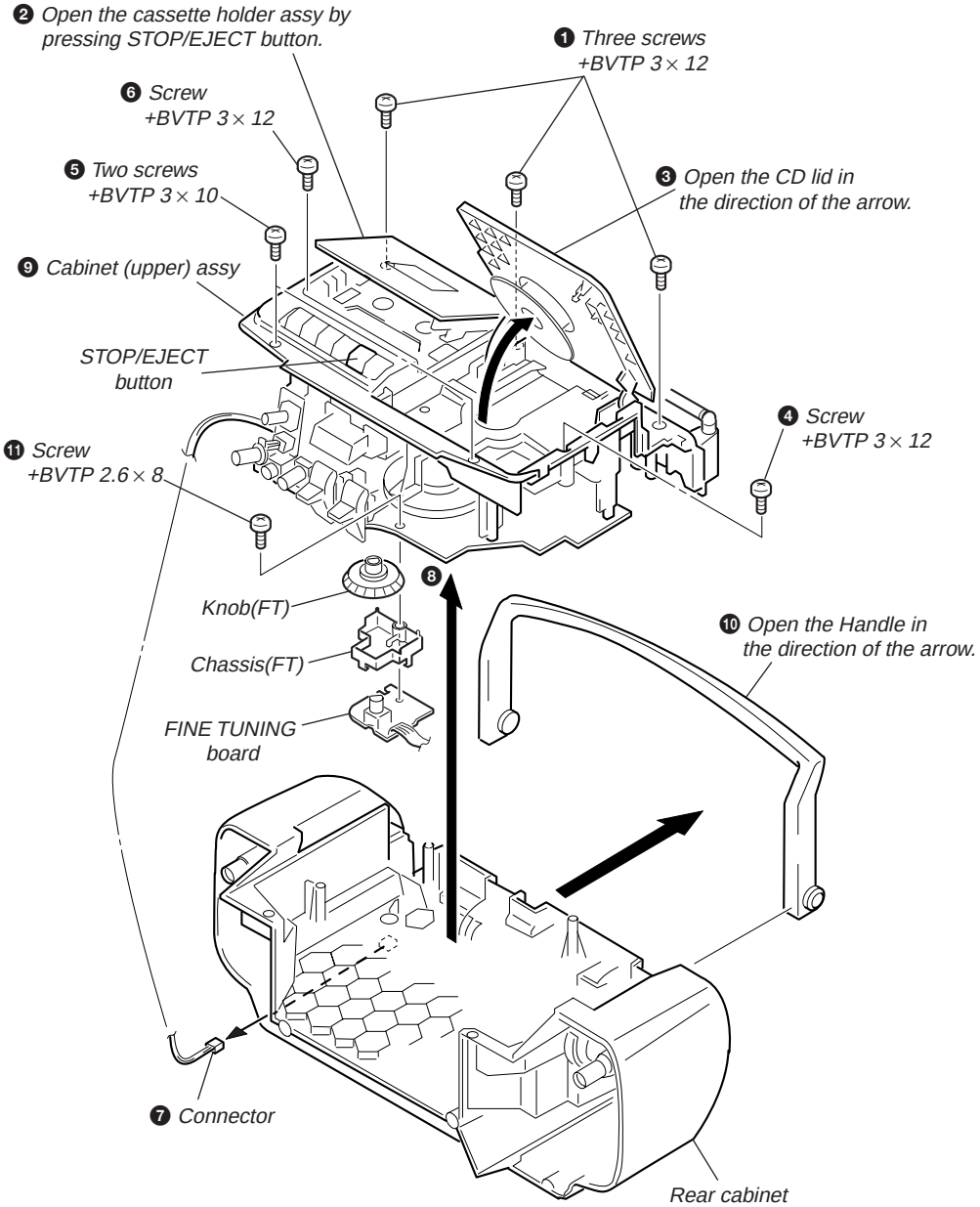
3-1. FRONT CABINET ASSY


❽ Vol knob
❿ Front cabinet assy
❾ Tone knob
❼ Screw +BVTP 3× 12
❺ Remove the Handle in the direction of the arrow.
Rear cabinet assy
❸ Screw +BVTP 3× 10
❻ Open the CD lid in the direction of the arrow.
❹ Three screws +BVTP 3× 12
❶ Lid battery case
❷ Three screws +BVTP 3× 10

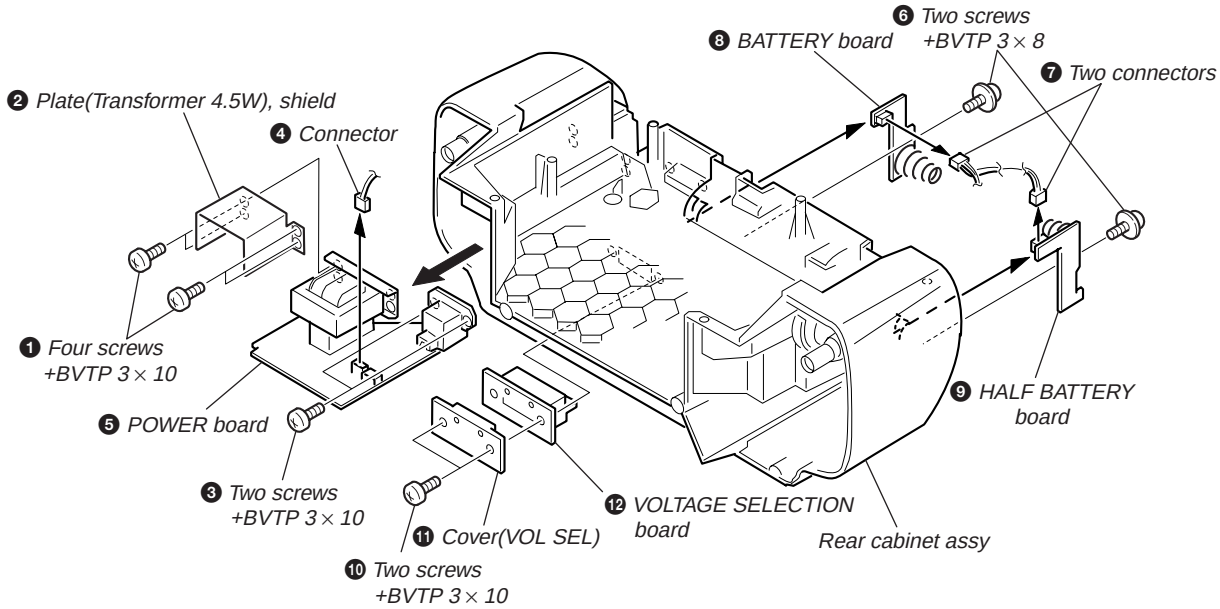
3-2. CONTROL BOARD



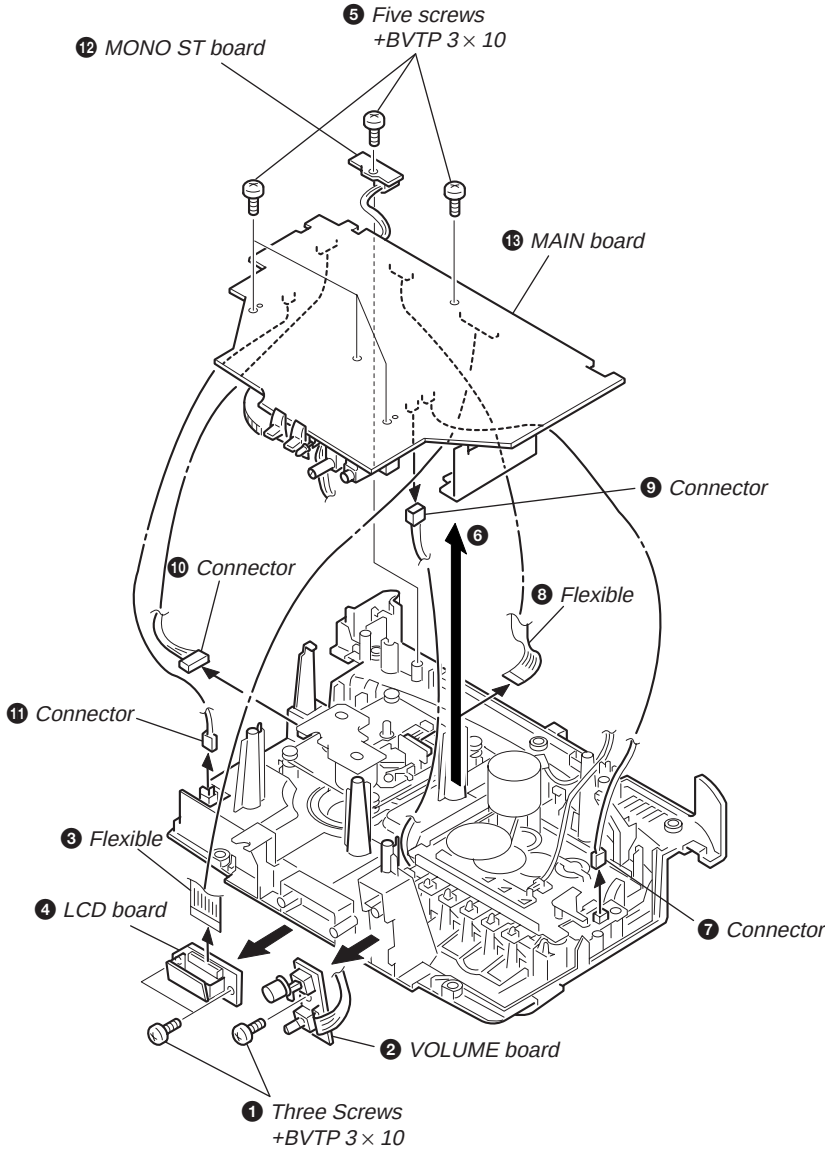
3-3. CABINET (UPPER) ASSY



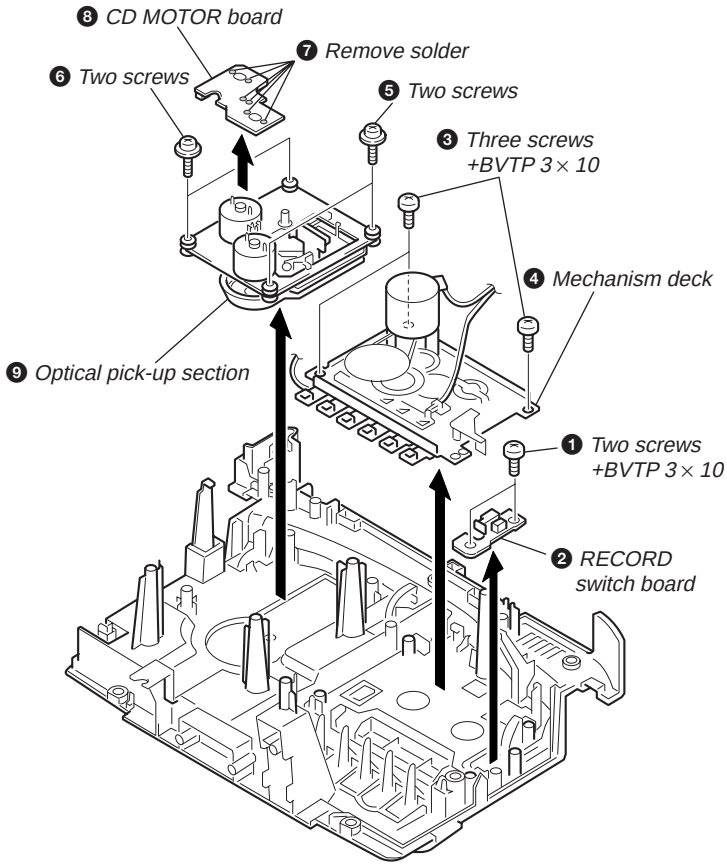
3-4. POWER, BATTERY, HALF BATTERY, VOLTAGE SELECTION BOARD



3-5. VOLUME, LCD, MONO ST, MAIN BOARD



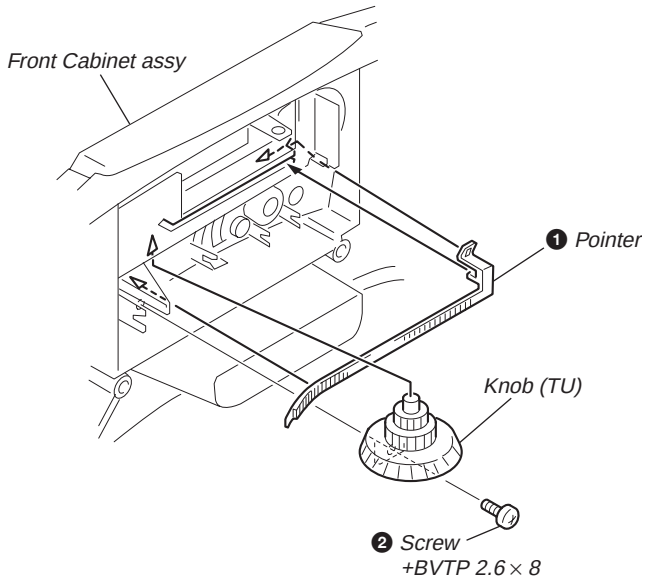
3-6. MECHANISM DECK, OPTICAL PICK-UP SECTION



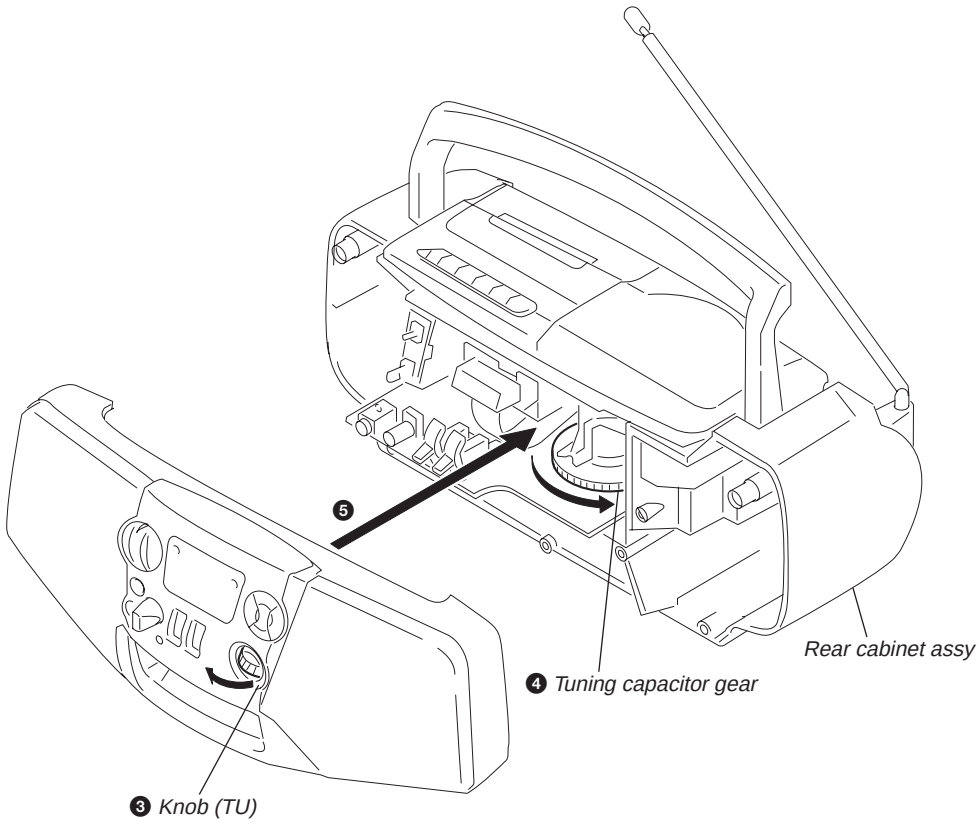
SECTION 4
DIAL POINTER INSTALLATION

Note : Follow the installation procedure in the numerical order given.

❶ Align the pointer with the groove of front cabinet assy and insert it as shown in the illustration.
❷ Align Knob (TU) with front cabinet and fasten the screw.



❸ Turn the Knob (TU) in the direction of the arrow as shown in the illustration until pointer agrees with scale " 0 " (at leftmost end of scale).
❹ Turn the tuning capacitor gear fully in the direction of the arrow as shown in the illustration.
❺ Fasten the front cabinet assy and rear cabinet assy with the screws.



SECTION 5
ADJUSTMENTS

5-1. MECHANICAL ADJUSTMENT

PRECAUTION

1. Clean the following parts with a denatured-alchool-moistened swab:
   record/playback head, pinch roller
   erase head, rubber belts
   capstans
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	18 – 60 g•cm (0.25 – 0.83 oz•inch)
FWD back tension		1.0 – 5.0 g•cm (0.014 – 0.069 oz•inch)
Fast Forward	CQ-201B	45 – 95 g•cm (0.62 – 1.32 oz•inch)
Rewind		45 – 95 g•cm (0.62 – 1.32 oz•inch)

Tape Tension Measurement

Torque Meter	Meter Reading
CQ-403A	more than 60 g (more than 2.12 oz)

5-2. ELECTRICAL ADJUSTMENT

TAPE RECODER SECTION 0dB = 0.775V

Standard output level

Output	HP OUT
Load impedance	32 Ω
Output signal level	0.25 V (–10 dB)

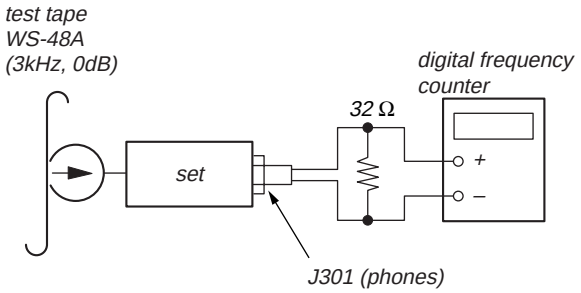
Test tape

Test Tape	Signal	Used for
WS-48A	3 kHz, 0 dB	Tape speed adjustment
P-4-A063	6.3 kHz, –10 dB	Head azimuth adjustment.

Tape Speed Adjustment

Procedure :

Mode : Playback



Adjustment Value : normal tape speed

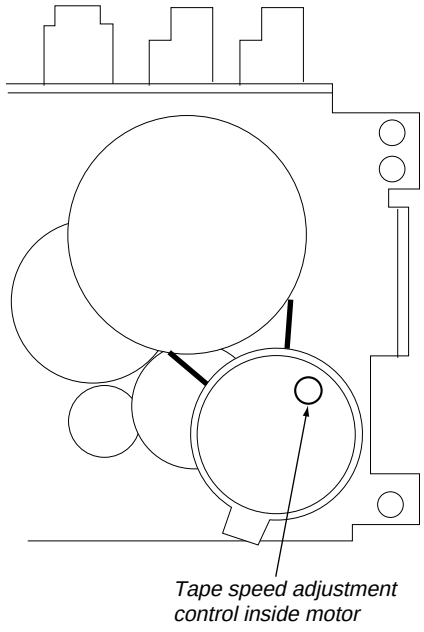
Adjust the tape speed adjustment control inside motor, so that the frequency counter reading becomes 3,000 Hz.

Specification Value :

Digital frequency counter
2,910 – 3,090Hz

Frequency difference between the beginning and the end of the tape should be within 1.5% (45 Hz).

Adjustment Location :



5-3. TUNER SECTION

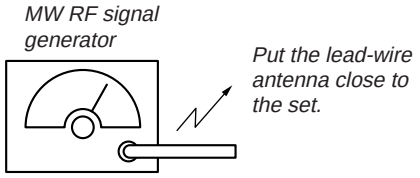
0 dB = 1 µV

• Switch Location

VOLUME : MAX
MEGA BASS : OFF
PRESET SOUND MODE : OFF

MW SECTION

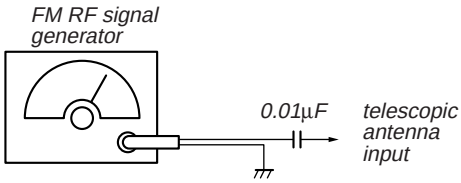
Setting :
FUNCTION switch : RADIO
BAND : MW
Signal generator



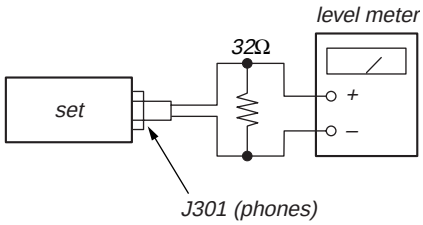
30% amplitude modulation by 400Hz signal.
Output level : as low as possible

FM SECTION

Setting :
FUNCTION switch : RADIO
BAND : FM
Signal generator

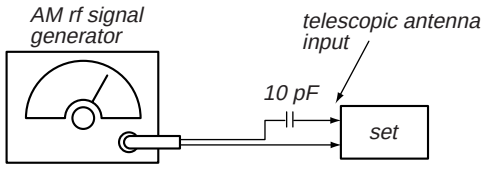


75kHz (100%) amplitude modulation by 1kHz signal.
Output level : as low as possible

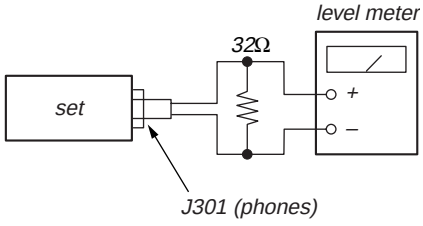


SW SECTION

Setting :
FUNCTION switch : RADIO
BAND : SW1/SW2
FINE TUNING knob : mechanical mid



30% amplitude modulation by 400 Hz
signal output level : as low as possible



• Repeat the procedures in each adjustment several times for the maximum level meter indication.
• The frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

MW IF ADJUSTMENT	
Adjust for a maximum reading on level meter.	
T2	455 kHz

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L3	620 kHz
CT3	1,400 kHz

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L4	520 kHz (516 kHz)<516 kHz>
CT4	1,680 kHz (1,630 kHz)<1,630 kHz>

FM IF ADJUSTMENT	
Adjust for a maximum reading on level meter.	
T1	10.7 MHz

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L1	86.5 MHz(87.35 MHz)[87.0 MHz]<87.35 MHz>
CT1	109.5 MHz(108.25 MHz)[108.3 MHz]<108.25 MHz>

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L2	86.5 MHz (87.35 MHz)[87.0 MHz]<87.35MHz>
CT2	109.5 MHz (107.8 MHz)[108.3 MHz]<108.25 MHz>

SW1 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L6	CT6
2.2 MHz	7.3 MHz

SW1 TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L5	CT5
2.2 MHz	7.3 MHz

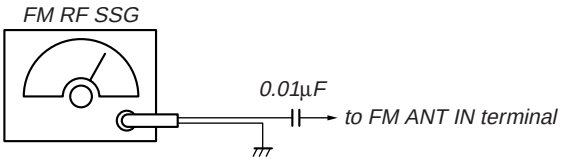
SW2 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L8	CT10
6.8 MHz	22.5 MHz

SW2 TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L7	CT9
6.8 MHz	22.5 MHz

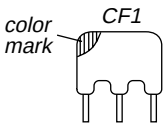
( ) : Saudi Arabia model
[ ] : AEP model
< > : Italian model
Adjustment Location : Main board (See page 13)

FM VCO Adjustment

Procedure :



Carrier frequency : 98MHz
IF frequency : According to the color of CF1.
Modulation : no modulation
Output level : 0.1V (100dB)

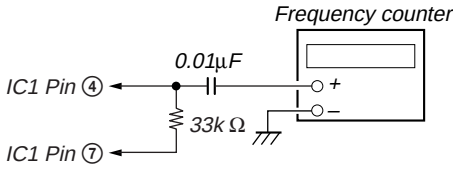


BLACK	10.64MHz
BLUE	10.67MHz
RED	10.70MHz
ORANGE	10.73MHz
WHITE	10.76MHz

1. Connect frequency counter to the positions shown below.
2. Tune the set to 98MHz.
3. Adjust RV1 so that the frequency counter reading becomes 76,000 Hz.

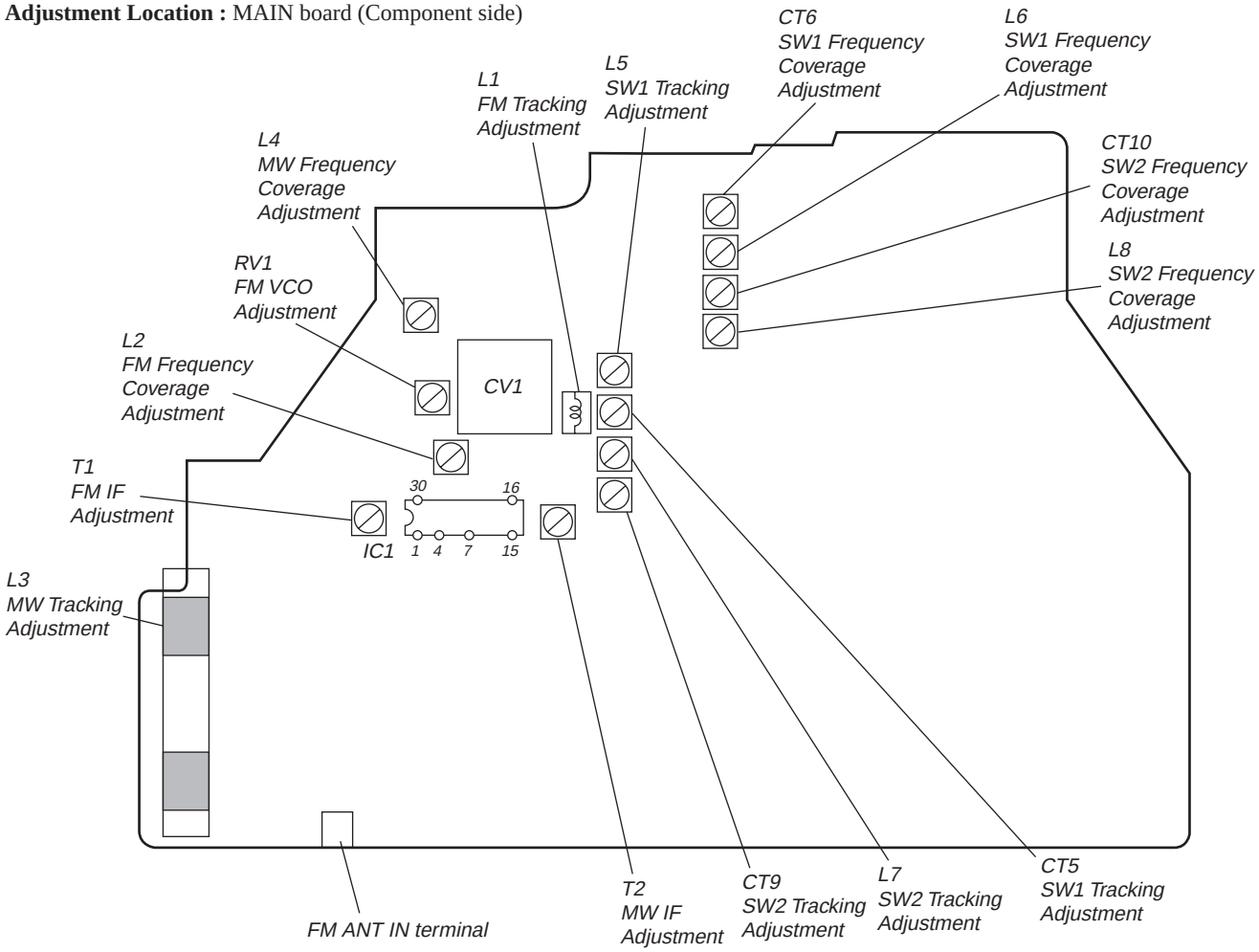
Specification Value :

Frequency counter
75,950 – 76,050 Hz

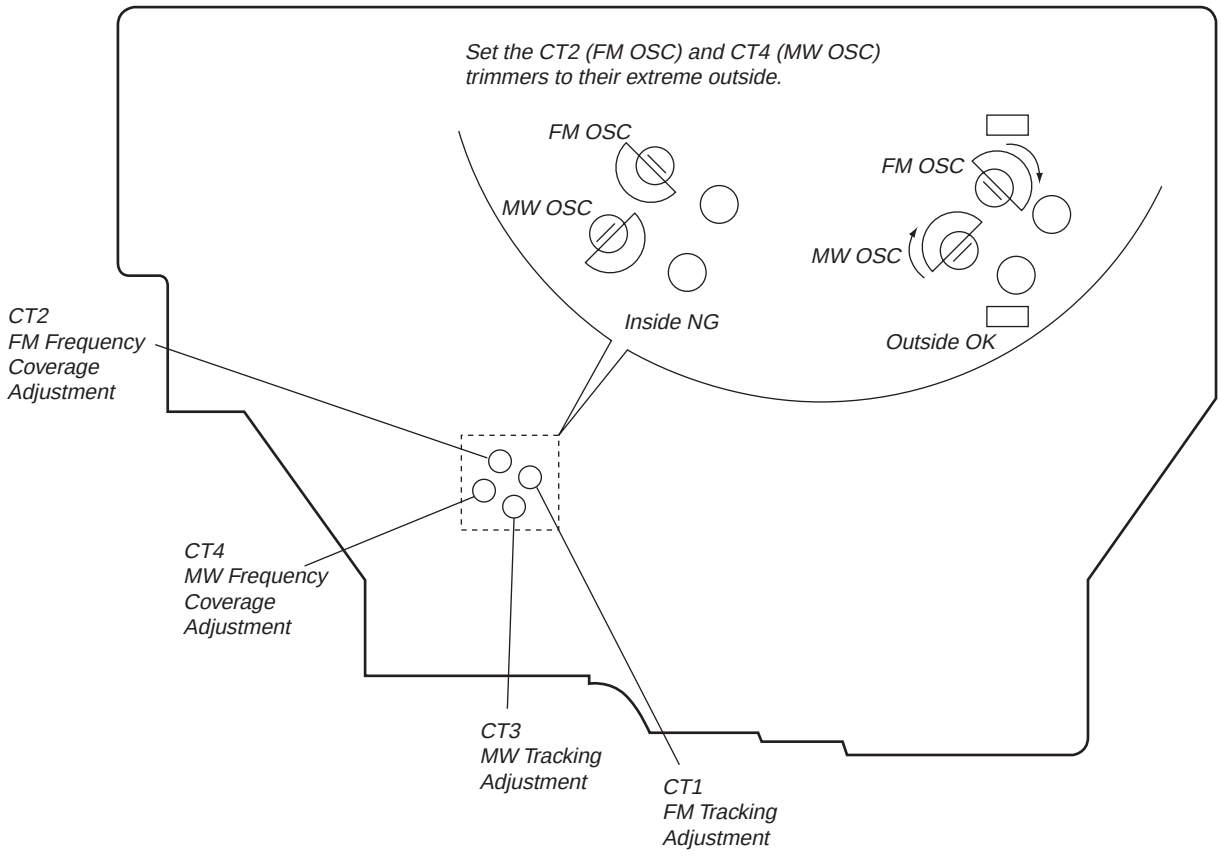


Adjustment Location : MAIN board (See page 13)

Adjustment Location : MAIN board (Component side)



Adjustment Location : MAIN board (Conductor side)



CD SECTION

Notes on Check

1. Perform the traverse check in the CD test mode.
   After check, be sure to exit the test mode.
2. Perform check in the order given.
3. Use the disc (YEDS-18, Parts No. 3-702-101-01) only when so indicated.

Before Check

Put the set into test mode and perform the following checks.
Repair if there are any problems.

• Sled Motor Check

Press ▶▶I , I◀◀ keys and confirm that the Optical pick-up moves smoothly from the innermost to outermost circumference and back smoothly and with no catching or abnormal noises.
(Cancellation of BTL mute)
▶▶I : Optical pick-up moves to the outer circumference.
I◀◀ : Optical pick-up moves to the inner circumference.

• Focus Search Check

1. Press the CD ▶II key. (Focus search operation is performed continuously.)
2. Look at the Optical pick-up objective lens and confirm that it moves up and down smoothly, with no catching or abnormal noises.
3. Press ■ button.
   Confirm that focus search operation stops. If it does not, press ■ button again longer.

How to Enter the Set into Test Mode

1. Set the function switch to power off.
2. Set the function switch to CD while I◀◀ key and ■ key pressing.
   The set is into CD test mode (88 is displayed).
3. Turn the power off to release test mode.

How to Exit the Test Mode

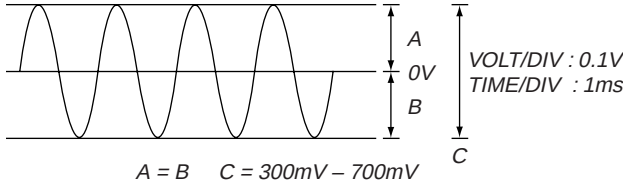
Turn the POWER OFF.

TRAVERSE Check

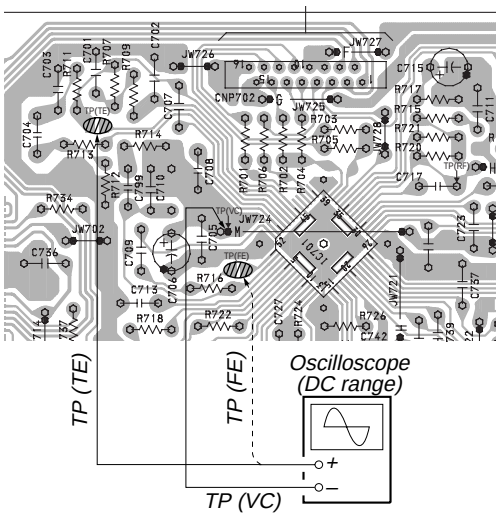
This check is to be done when the optical pick-up block is replaced.

Check Procedure:

1. Connect the oscilloscope to test point TP (VC) and TP (TE) on MAIN board.
2. Put the set into test mode.
3. Optical pick-up setting to the center by ▶▶I or I◀◀ button pushing.
4. Insert disk (YEDS-18) and press ▶II button.
5. Check that the oscilloscope traverse waveform is symmetrical, as shown in the figure below.
6. Release test mode after adjustment is completed.



[MAIN BOARD] (Conductor side)



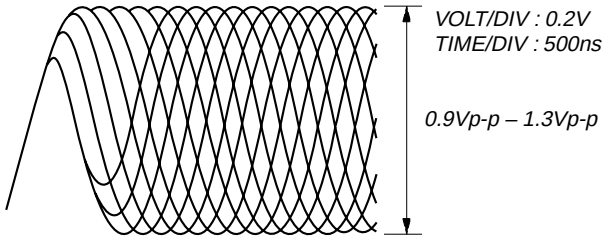
Focus Bias Check

This check is to be done when the optical block replaced.

Check Procedure:

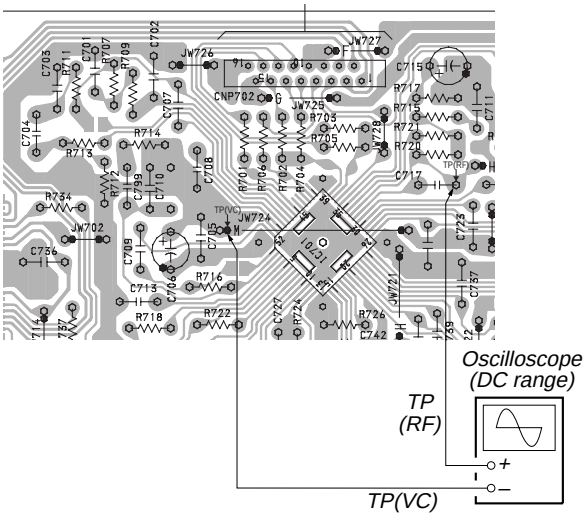
1. Connect the oscilloscope to test point TP (VC) and TP (RF) on MAIN board.
2. Put the set into test mode.
3. Opitical pick-up setting to the center by + or – button pushing.
4. Insert disk (YEDS-18) and press ▶II button.
5. Press the MODE button. (Tracking servo ON)
6. Check that the oscilloscope wavewform is as shown in the figure below (eye pattern).
   A good eye pattern means that the diamond shape (◊) in the center of the waveform can be clearly distinguished.
7. Release test mode after adjustment is completed.

• RF signal reference waveform (eye pattern)



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensivity.

[MAIN BOARD] (Conductor side)



5-4. REFERENCE

Focus/Tracking Gain Check

Adjustment Location : MAIN board (Component side)

(See page 16)

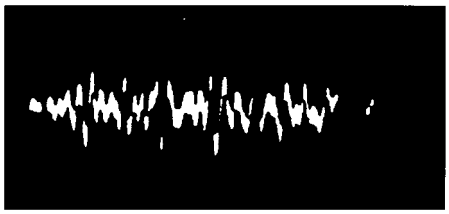
A frequency response analyzer is necessary in order to perform this check exactly.
However, this gain has a margin, so even if it is slightly off, there is no problem.
Focus/Tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

Symptoms \ Gain	Focus	Tracking
• The time until music starts becomes longer for STOP ➡ CD ▶II or automatic selection (◀◀ , ▶▶ buttons pressed). (Normally takes about 2 seconds.)	low	low or high
• Music does not start and disc continues to rotate for STOP ➡ CD ▶II or automatic selection (◀◀ , ▶▶ buttons pressed.)	—	low
• Sound is interrupted during PLAY. Or time counter display stops progressing.	—	low
• More noise during 2-axis device operation.	high	high

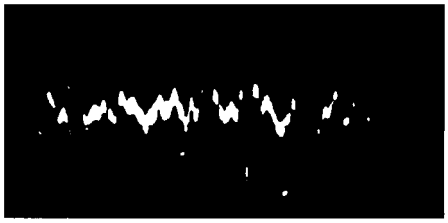
Check Procedure:

1. Keep the set horizontal.
2. Inset disk (YEDS-18) and press ▶II button.
3. Connect an oscilloscope to TP (FE) and TP (VC) on the MAIN board.
4. Check that the waveform is as shown in the figure below. (Focus waveform)

• Good Example



• Incorrent Examples (DC level changes more than on adjusted waveform)

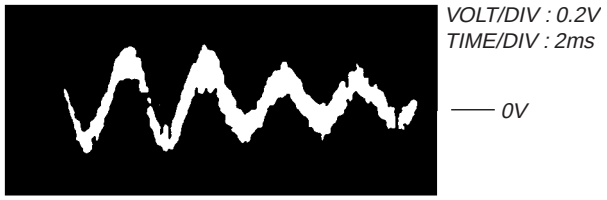


low focus gain

high focus gain

5. Connect an oscilloscope between TP (TE) and TP (VC).
6. Insert disc (YEDS-18) and press the CD ▶II button.
7. Check that the waveform is as shown in the figure below. (tracking waveform)

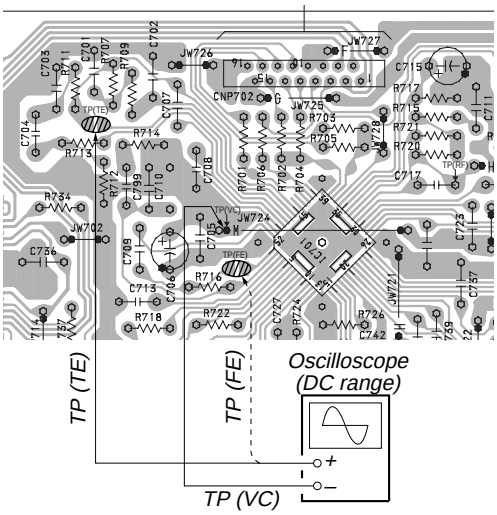
• Incorrect Examples (Fundamental wave appears)



low tracking gain

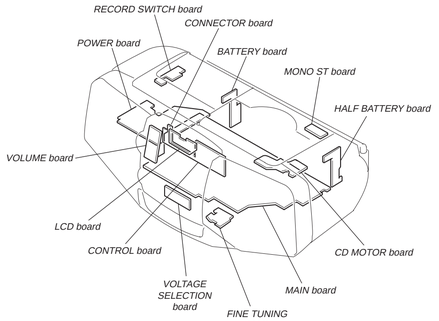
high tracking gain
(high fundamental wave than for low gain)

[MAIN BOARD] (Conductor side)

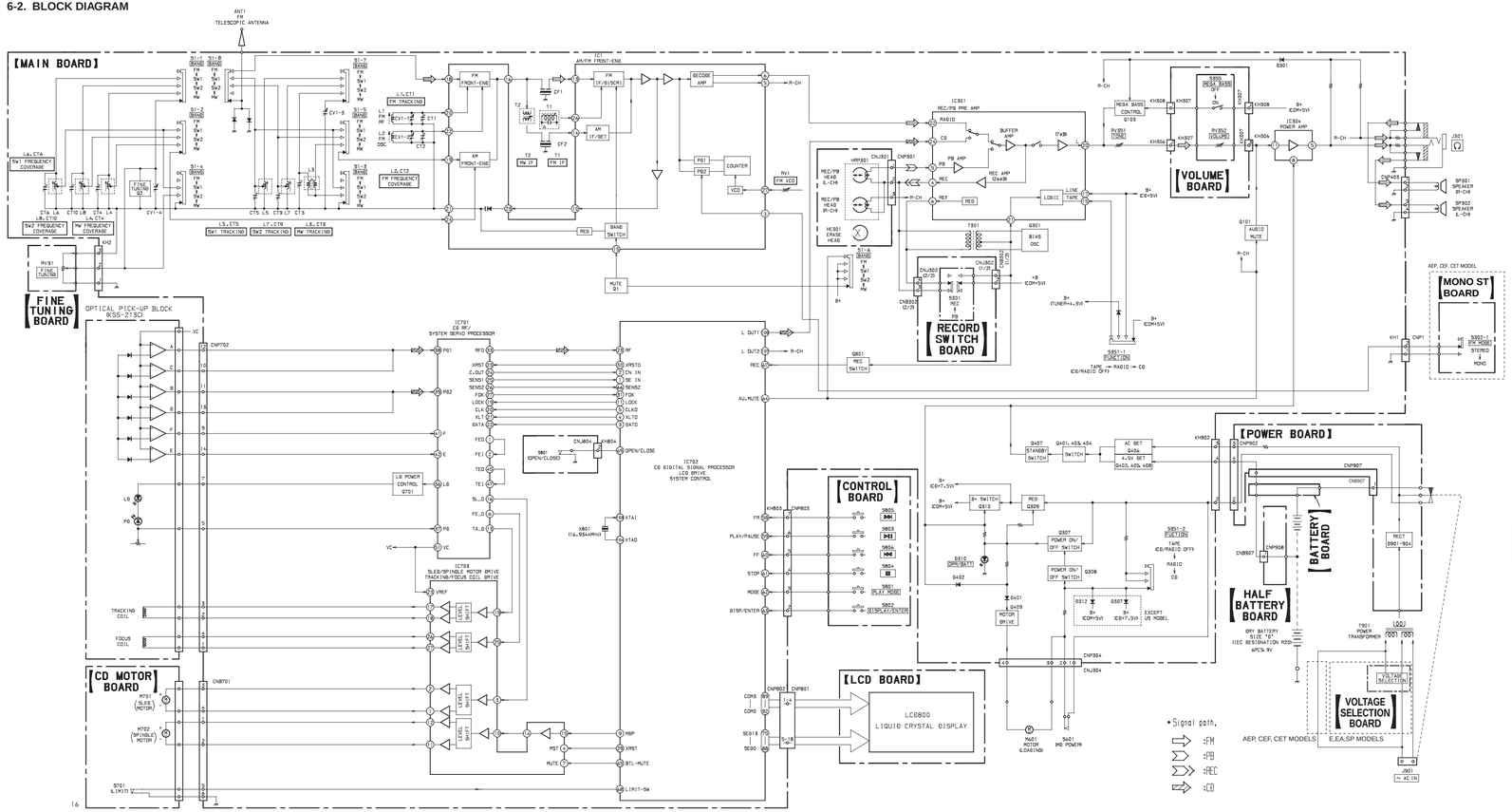


SECTION 6
DIAGRAMS

6-1. CIRCUIT BOARDS LOCATION



6-2. BLOCK DIAGRAM



Note on Printed Wiring Board:
- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ▨ : Pattern from the side which enables seeing.

Note on Schematic Diagrams:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.
- : panel designation.
- : adjustment for repair.
- B+ : B+ Line.
- Power voltage is dc 9 V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

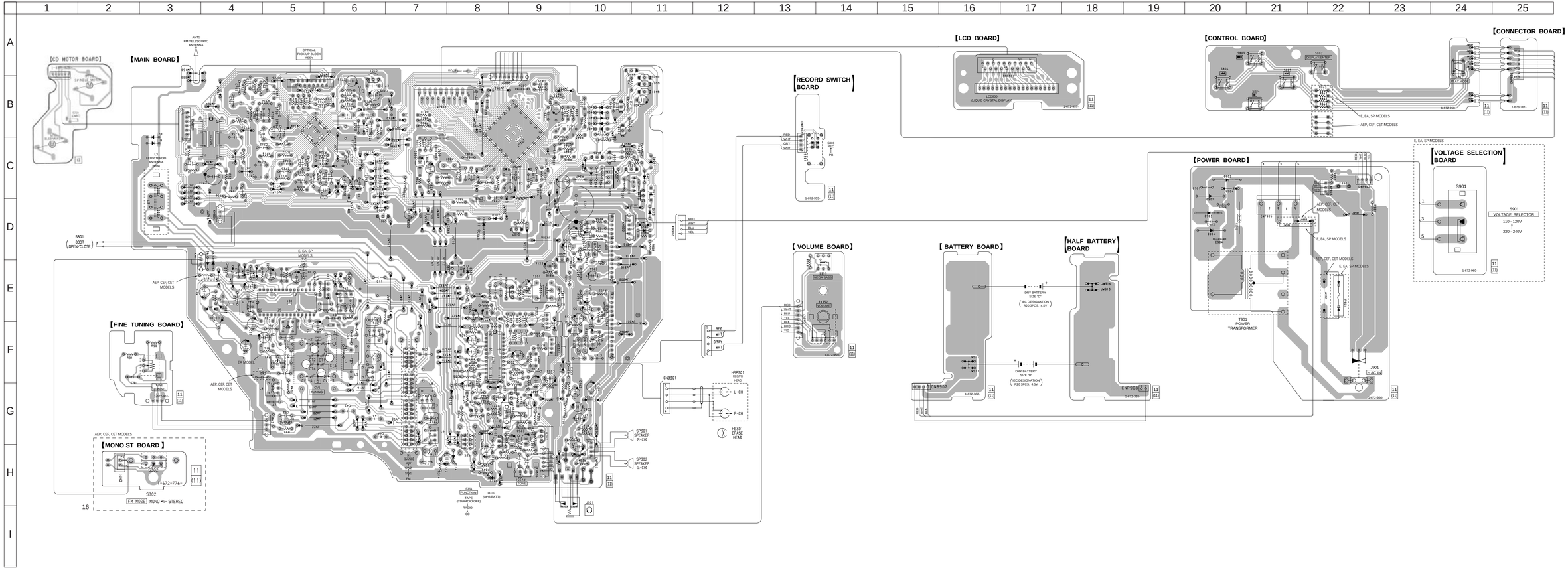
– For MAIN BOARD (1/3) –
no mark : PLAY (TAPE SECTION)
CD STOP
( ) : REC (TAPE SECTION)
– For MAIN BOARD (2/3) –
no mark : CD PLAY
TAPE STOP
– For MAIN BOARD (3/3) –
no mark : FM
( ) : MW
[ ] : SW
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
: FM
: PB
: REC
: CD
- Abbreviation
EA : Saudi Arabia model
SP : Singapore model
CEF : Italian model
CET : East European and Russian models

6-3. PRINTED WIRING BOARD

• Refer to page 20 for Note on Printed Wiring Board. • Refer to page 17 for Circuit Boards Location.

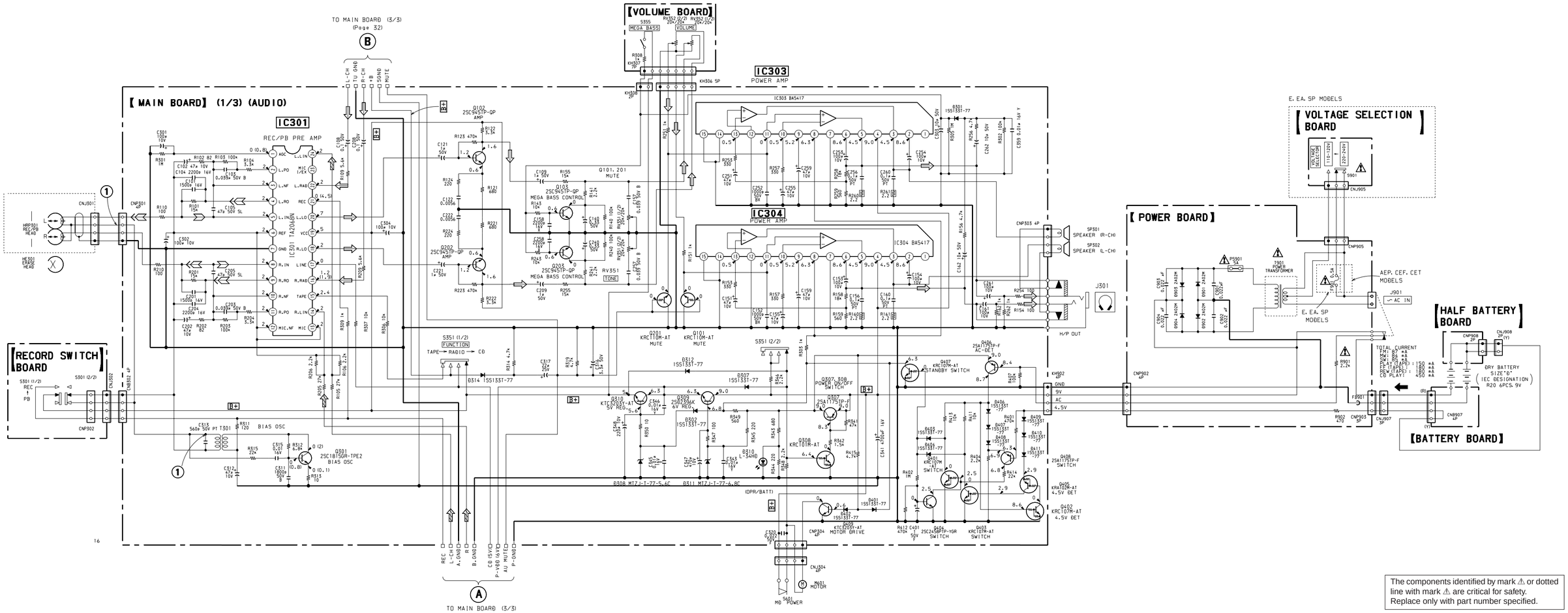
• **Semiconductor Location**

Ref. No.	Location
D1	C-3
D2	C-3
D3	E-4
D4	E-4
D301	G-9
D302	D-9
D307	E-8
D308	D-8
D310	H-9
D311	C-10
D312	G-8
D314	H-8
D401	C-11
D402	C-11
D403	B-10
D404	B-10
D406	B-10
D407	B-10
D408	B-10
D409	D-11
D410	D-11
D411	D-11
D801	D-7
D901	D-20
D902	C-20
D903	D-20
D904	D-20
IC1	E-5
IC301	F-9
IC303	D-10
IC304	F-10
IC701	B-5
IC702	C-9
IC703	C-4
Q1	E-6
Q2	G-5
Q101	F-10
Q102	G-8
Q103	H-8
Q201	E-9
Q202	G-8
Q203	G-9
Q301	E-9
Q307	C-11
Q308	C-10
Q309	C-10
Q310	E-8
Q401	B-11
Q402	B-11
Q403	B-10
Q404	B-10
Q405	B-11
Q406	C-10
Q407	D-9
Q408	A-10
Q409	D-11
Q701	B-6
Q801	D-6



6-4. SCHEMATIC DIAGRAM – MAIN BOARD (1/3) –

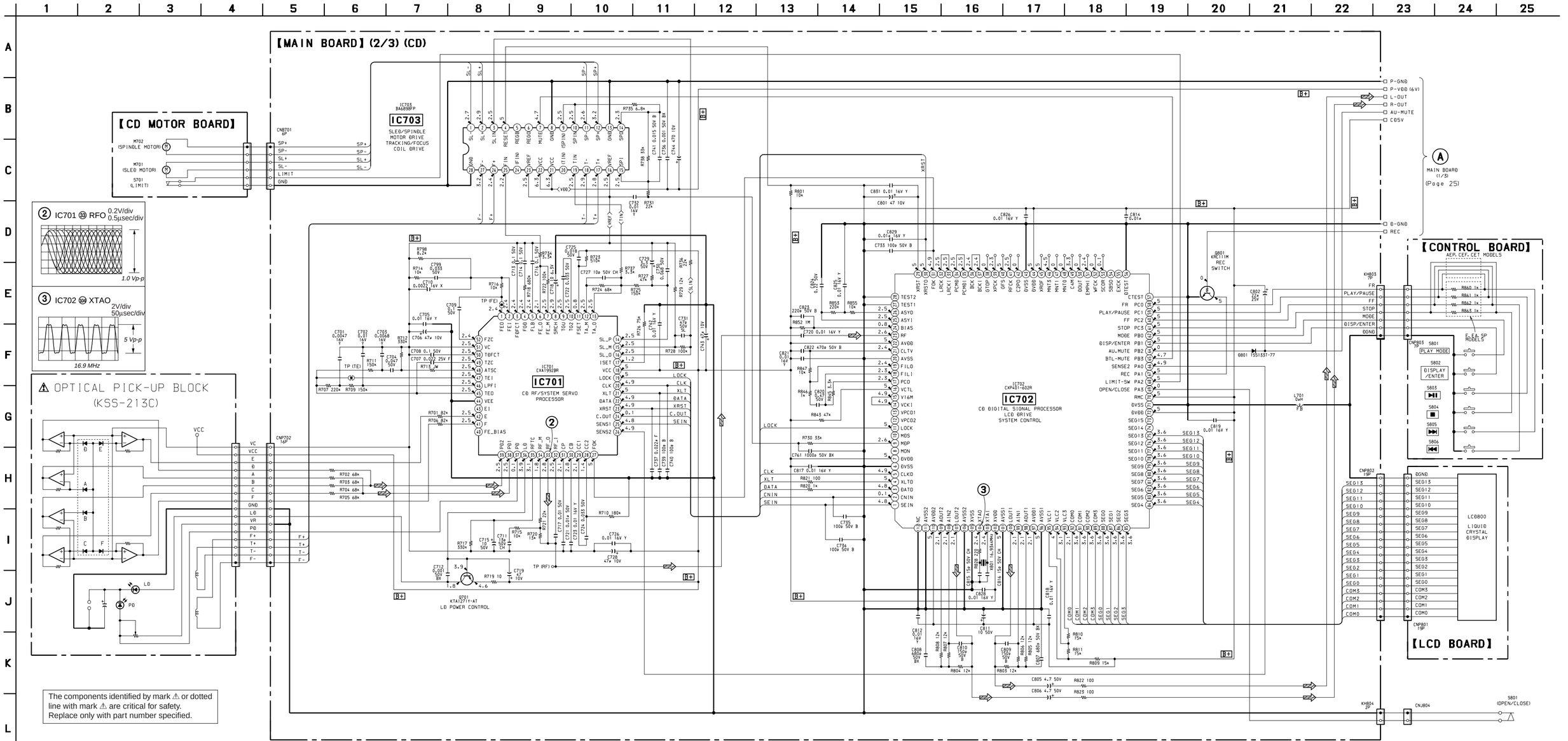
• Refer to page 20 for Note on Schematic Diagram. • Refer to page 35 for IC Block Diagrams.



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

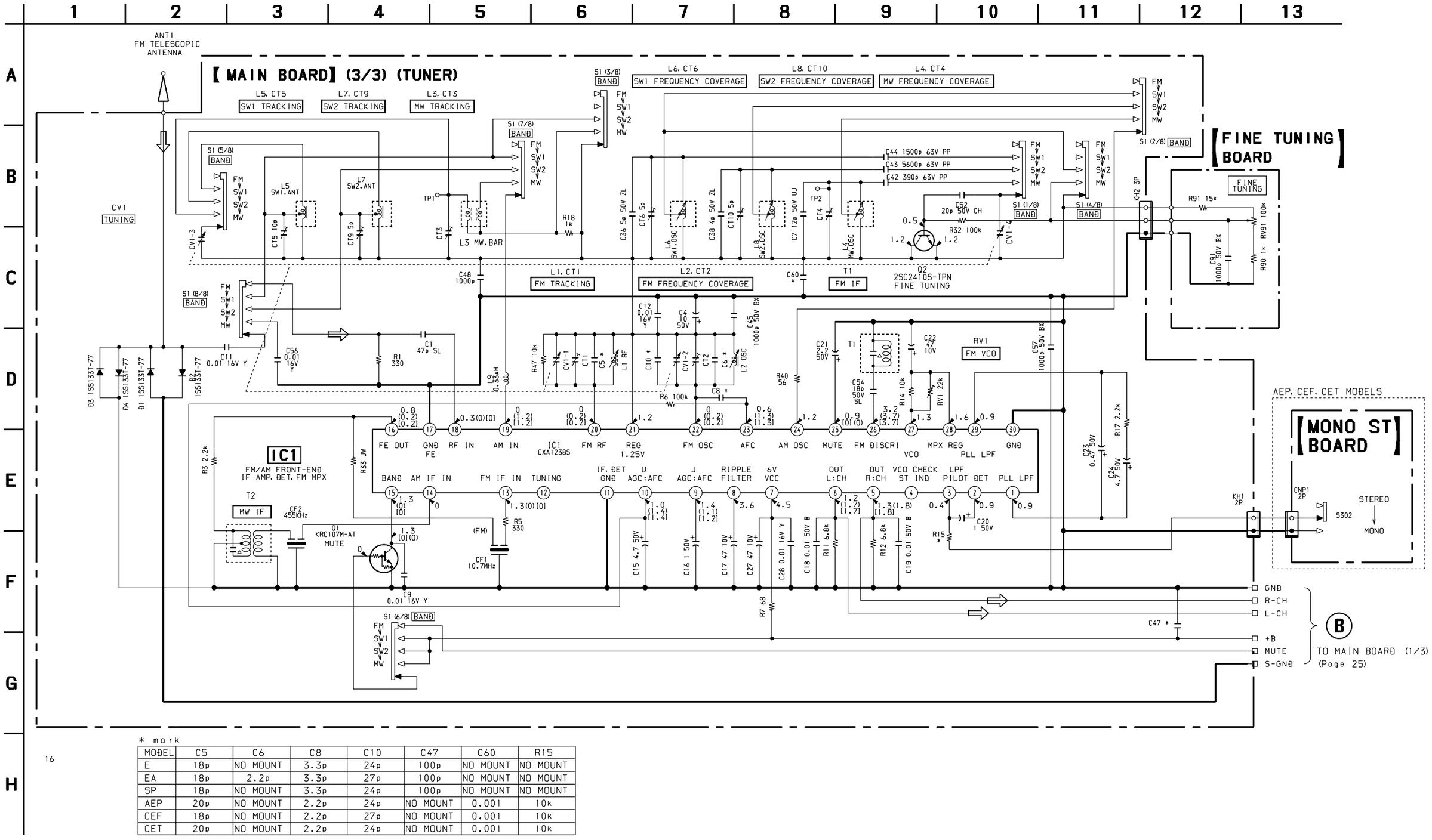
6-5. SCHEMATIC DIAGRAM – MAIN BOARD (2/3) –

• Refer to page 20 for Note on Schematic Diagram. • Refer to page 35 for IC Block Diagrams.



6-6. SCHEMATIC DIAGRAM – MAIN BOARD (3/3) –

• Refer to page 20 for Note on Schematic Diagram.
• Refer to page 35 for IC Block Diagrams.



* mark

MODEL	C5	C6	C8	C10	C47	C60	R15
E	18p	NO MOUNT	3.3p	24p	100p	NO MOUNT	NO MOUNT
EA	18p	2.2p	3.3p	27p	100p	NO MOUNT	NO MOUNT
SP	18p	NO MOUNT	3.3p	24p	100p	NO MOUNT	NO MOUNT
AEP	20p	NO MOUNT	2.2p	24p	NO MOUNT	0.001	10k
CEF	18p	NO MOUNT	2.2p	27p	NO MOUNT	0.001	10k
CET	20p	NO MOUNT	2.2p	24p	NO MOUNT	0.001	10k

6-7. IC PIN FUNCTION DESCRIPTION

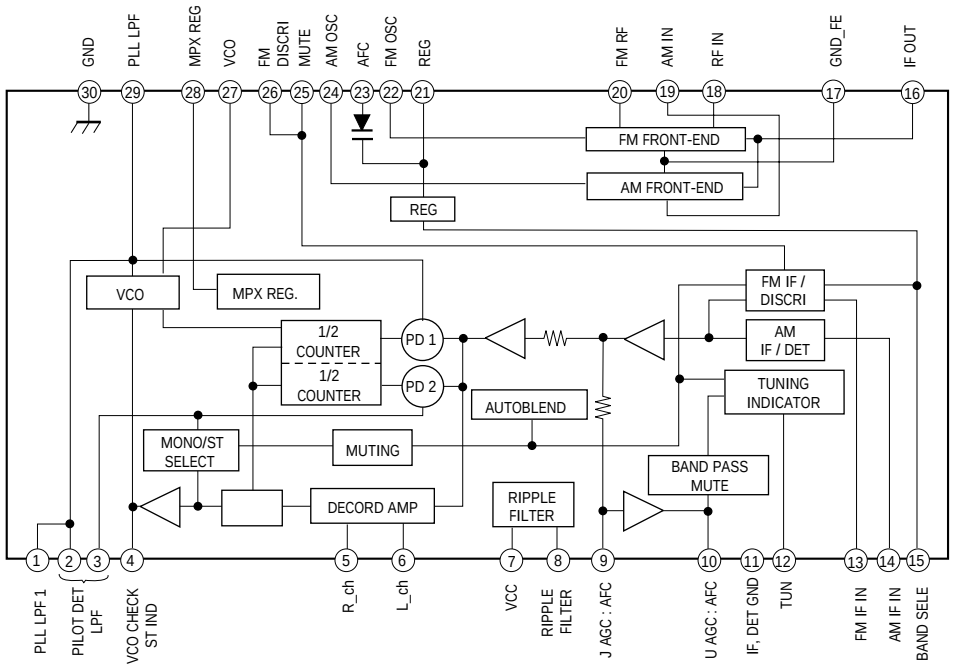
IC702 CD DIGITAL SIGNAL PROCESSOR, LED DRIVE, SYSTEM CONTROL (CXP401-602R)

Pin No.	Pin name	I/O	Description
1	SEIN	I	CD SENS input.
2	CNIN	I	CD SENS input.
3	DATO	O	CD DSP command data output.
4	XLTO	O	Latch output.
5	CLKO	O	Clock output for CD DSP command.
6	DV_{SS}	–	Digital ground.
7	DV_{DD}	–	Digital power supply (+5V).
8	MON	–	Not used (Open).
9	MDP	O	Spindle motor drive control.
10	MDS	–	Not used (Open).
11	LOCK	O	Lock signal output.
12	VPCO2	–	Not used (Open).
13	VPCO1	–	Not used (Open).
14	VCKI	–	Not used (Connect to ⑮ pin).
15	V16M	–	Not used (Connect to ⑭ pin).
16	VCTL	–	Not used (“H” level).
17	PCO	O	Decoder PLL phase comparator output.
18	FILI	I	Decoder PLL filter input.
19	FILO	O	Decoder PLL filter output.
20	AV_{SS}	–	Analog ground.
21	CLTV	I	Decoder PLL VCO control voltage input.
22	AV_{DD}	–	Analog power supply (+5V).
23	RF	I	CD RF signal input.
24	BIAS	I	Playback EFM asymmetry current constant input.
25	ASYI	I	Playback EFM asymmerty comparater voltage input.
26	ASYO	O	Playback EFM full swing output.
27	TEST1	I	Test terminal (Fixed at “L”).
28	TEST2	I	Test terminal (Fixed at “L”).
29	XRST	I	CD reset input.
30	XRSTO	O	CD reset output. “L” : Reset
31	FOK	I	FOK signal input.
32	LRCK	O	L/R clock signal output. (Connect to ㉝ pin)
33	LRCKI	I	L/R clock signal input. (Connect to ㉜ pin)
34	PCMD	O	PCM data output. (Connect to ㉟ pin)
35	PCMDI	I	PCM data input. (Connect to ㉞ pin)
36	BCK	O	Bit clock signal output. (Connect to ㊲ pin)
37	BCKI	I	Bit clock signal input. (Connect to ㊱ pin)
38	GTOP	–	Not used (Open).
39	XPCK	–	Not used (Open).
40	GFS	–	Not used (Open).
41	RFCK	–	Not used (Open).
42	C2PO	–	Not used (Open).
43	DV_{SS}	–	Digital ground.
44	DV_{DD}	–	Digital power supply (+5V).
45	XROF	–	Not used (Open).

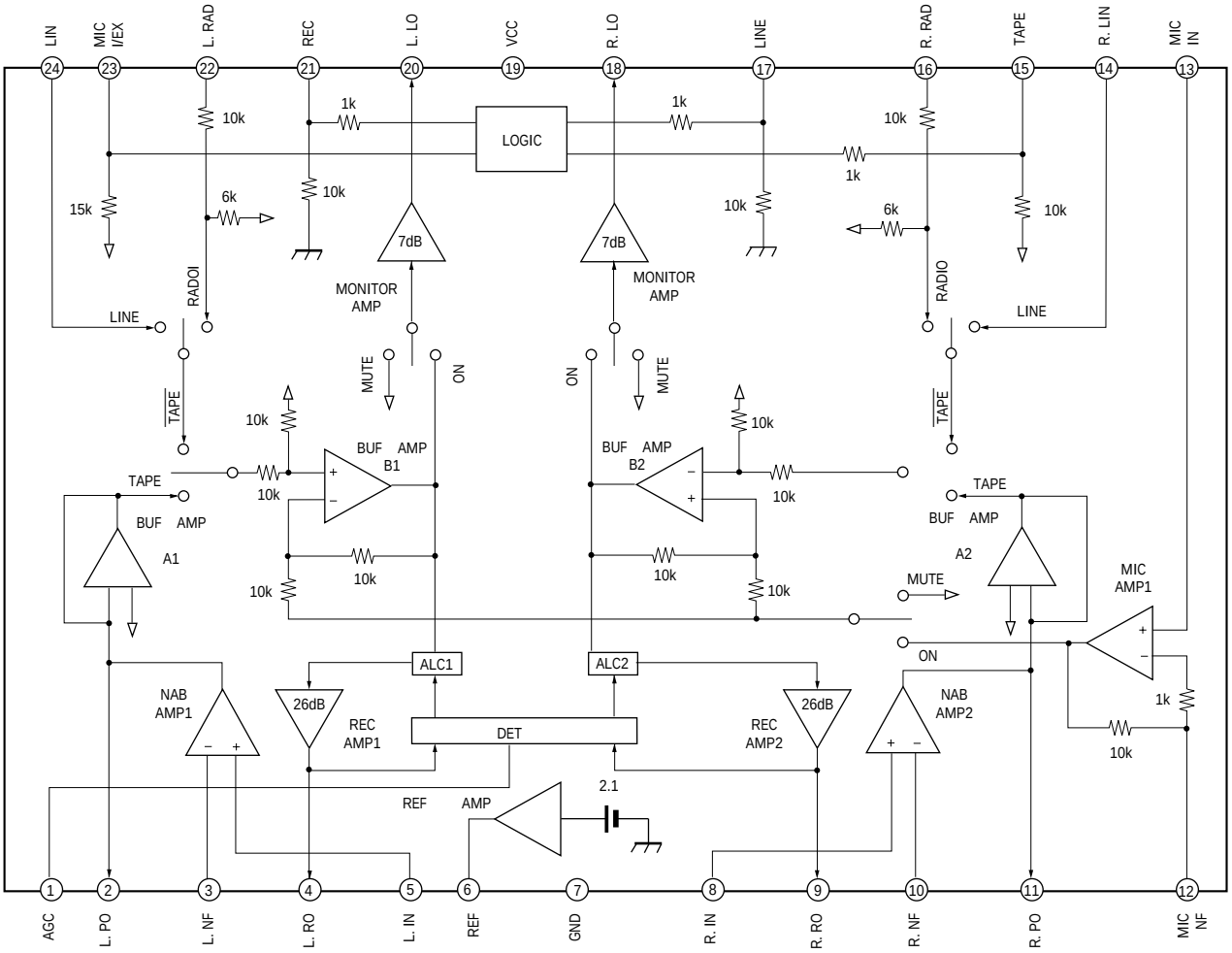
Pin No.	Pin name	I/O	Description
46	MNT3	–	Not used (Open).
47	MNT1	–	Not used (Open).
48	MNT0	–	Not used (Open).
49	C4M	–	Not used (Open).
50	DOUT	–	Not used (Open).
51	EMPHI	–	Not used (Open).
52	WFCK	–	Not used (Open).
53	SCOR	–	Not used (Open).
54	SBSO	–	Not used (Open).
55	EXCK	–	Not used (Open).
56	DTEST	I	Test terminal (Fixed at “L”).
57	CTEST	I	Test terminal (Fixed at “L”).
58	FR	I	⏮ key input.
59	PLAY/PAUSE	I	⏯ key input.
60	FF	I	⏭ key input.
61	STOP	I	■ key input.
62	MODE	I	PLAY MODE key input.
63	DISP/ENTER	I	DISPLAY/ENTER key input.
64	AU MUTE	O	Audio mute signal output.
65	BTL MUTE	O	BTL mute signal output.
66	SENCE2	I	CD SENCE input.
67	REC	I	Function REC input.
68	LIMIT SW	I	LIMIT switch input.
69	OPEN/CLOSE	I	CD door open/close switch input.
70	RMC	–	Not used (Fixed at “H”).
71	DV_{SS}	–	Digital ground.
72	DV_{DD}	–	Digital power supply (+5V).
73	SEG 15	–	Not used (Open).
74	SEG 14	–	Not used (Open).
75 – 88	SEG 0 – 13	O	LCD segment output.
89 – 92	COM 0 – 3	O	LCD common output.
93 – 95	VCL 1 – 3	I	LCD drive device voltage input.
96	$AV_{SS}1$	–	Analog ground.
97	$AV_{DD}1$	–	Analog power supply (+5V).
98	AOUT1	O	Audio output.
99	AIN1	I	Audio input.
100	LOUT1	O	L-CH audio output.
101	$AV_{SS}1$	–	Analog ground.
102	XV_{DD}	–	Oscillator power supply (+5V).
103	XTAI	I	Oscillator connect terminal (16.9344MHz).
104	XTAO	O	Oscillator connect terminal (16.9344MHz).
105	XV_{SS}	–	Oscillator ground.
106	$AV_{SS}2$	–	Analog ground.
107	LOUT2	O	R-CH audio output.
108	AIN2	I	Audio input.
109	AOUT2	O	Audio output.
110	$AV_{DD}2$	–	Digital power supply (+5V).
111	$AV_{SS}2$	–	Ground terminal.
112	NC	–	Not used (Connect to ground).

• IC BLOCK DIAGRAMS

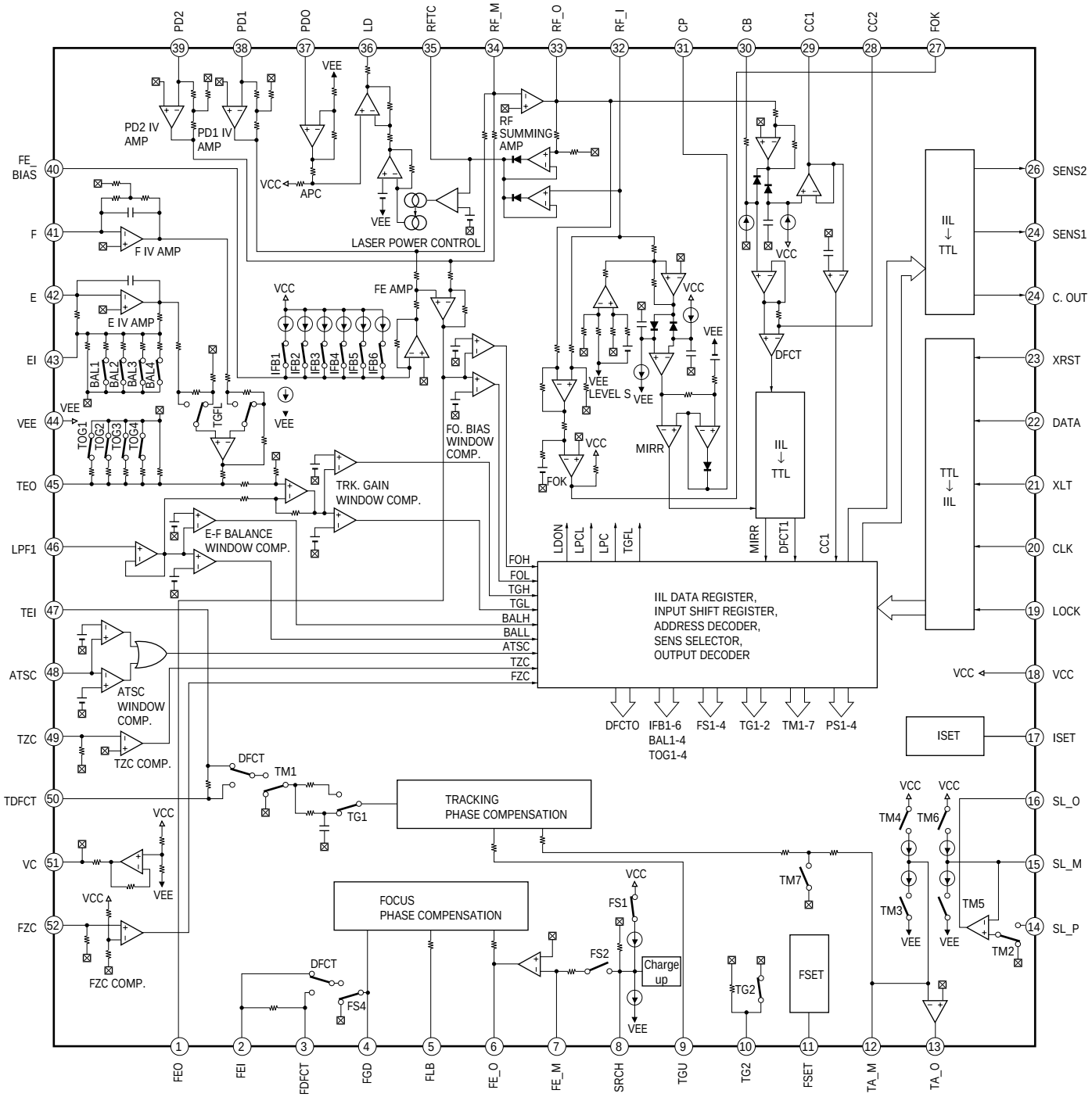
IC1 CXA1538S



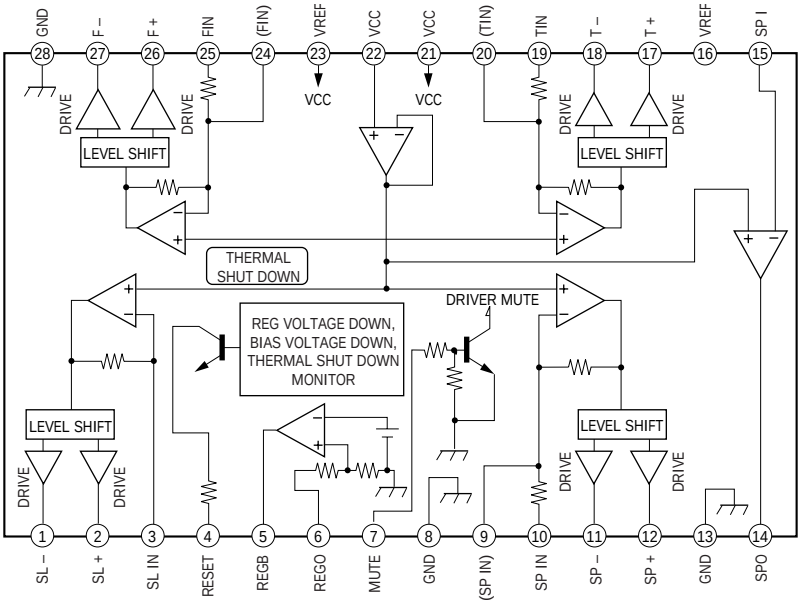
IC301 TA2068N



IC701 CXA1992BR



IC703 BA6898FP



SECTION 7
EXPLODED VIEWS

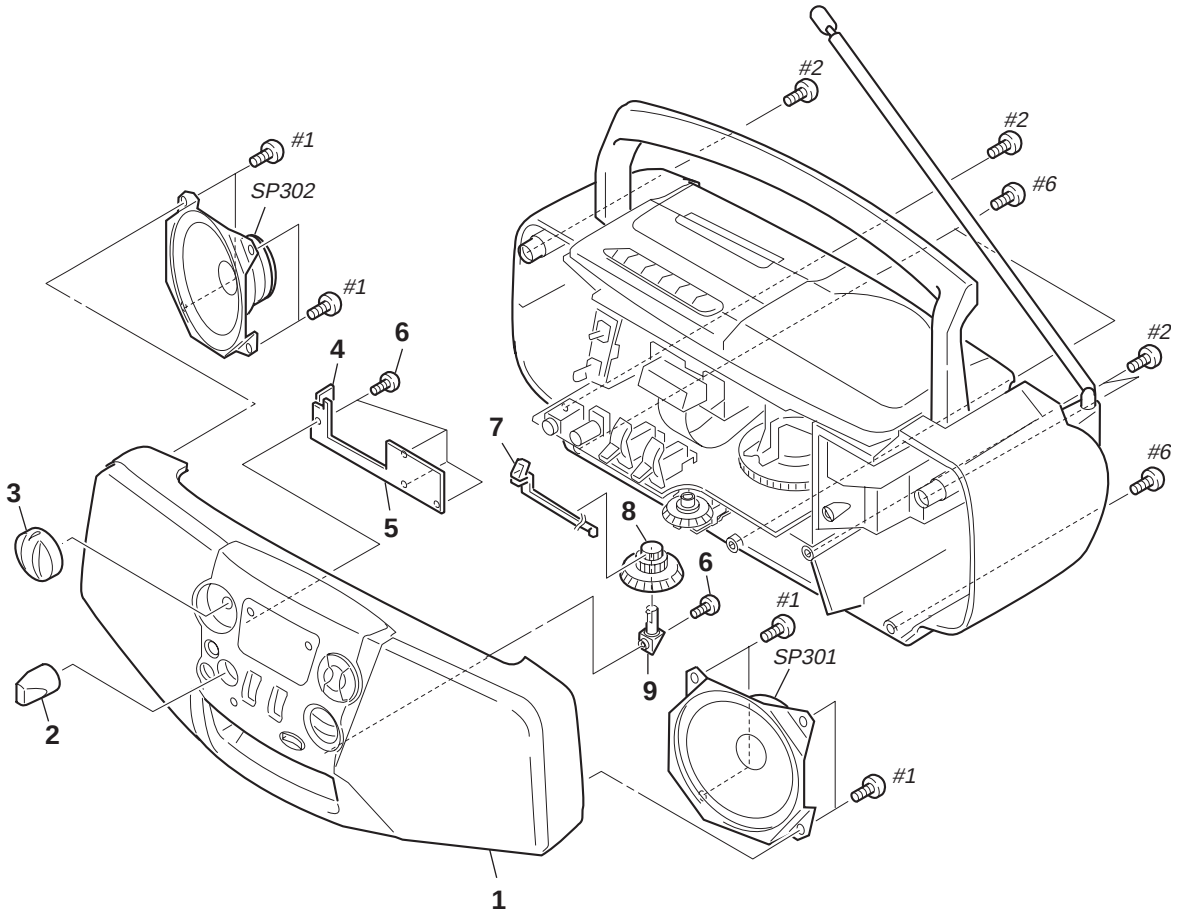
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
  EA : Saudi Arabia model
  SP : Singapore model
  CEF : Italian model
  CET : East European and Russian model
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts of Color Cabinet's Color
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

When indicating parts by reference number, please include the board name.

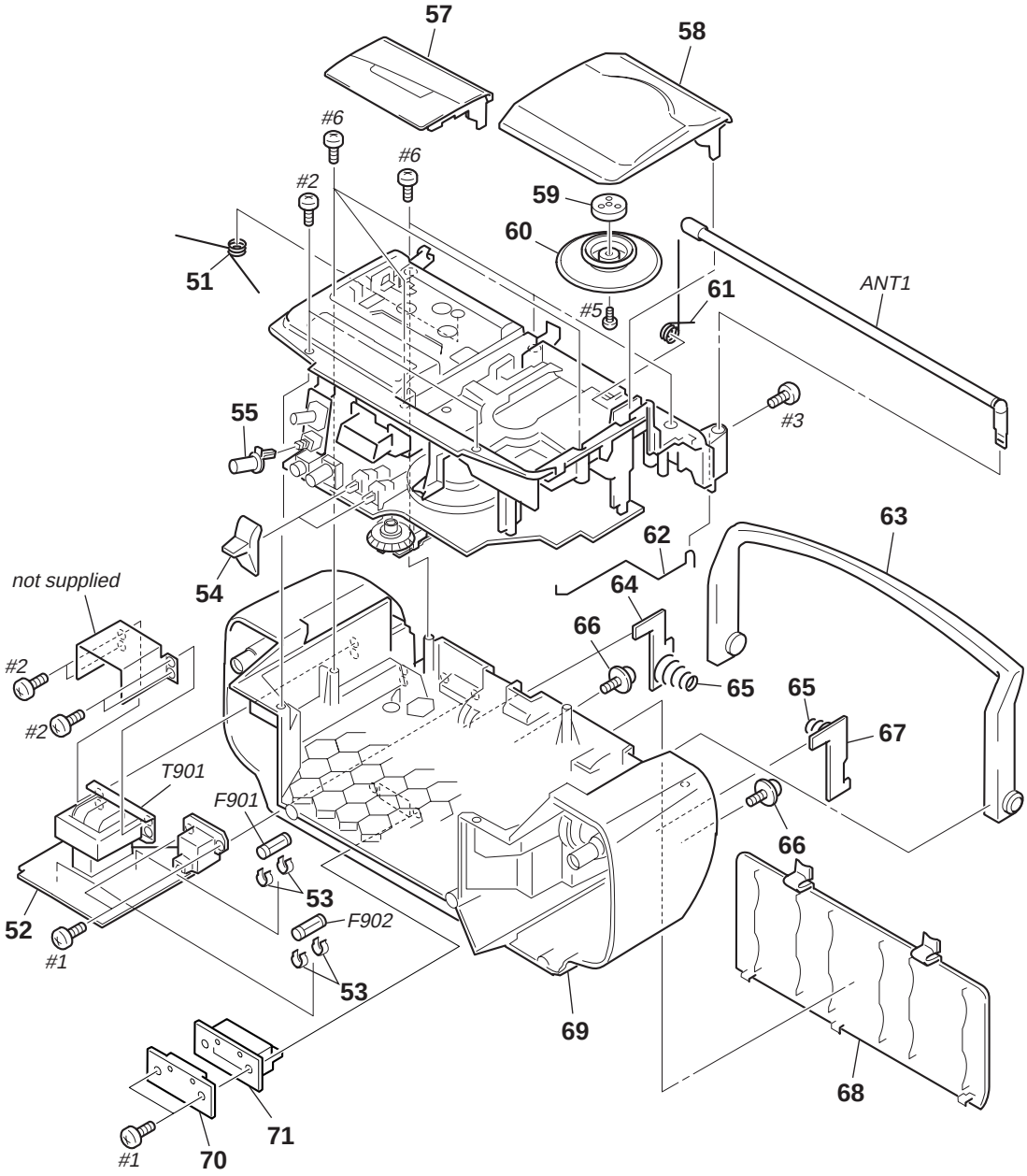
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

7-1. FRONT CABINET SECTION



Ref. No.	Part No.	Description	Remarks
1	X-3377-295-1	CABINET (FRONT) SUB ASSY (EA,AEP,CEF,CET)	
1	X-3377-422-1	CABINET (FRONT) SUB ASSY (E, SP)	
2	3-018-837-41	KNOB(VOL)(TONE)	
3	3-031-549-21	KNOB(VOL)(VOLUME)	
* 4	1-673-261-11	CONNECTOR BOARD	
* 5	1-672-958-11	CONTROL BOARD	
6	4-951-620-01	SCREW(2.6 × 8), +BVTP	
7	3-031-551-01	POINTER	
8	3-031-552-11	KNOB(TU)	
9	3-031-558-01	SHAFT(TU)	
SP301	1-529-341-11	SPEAKER (10cm) (R)	
SP302	1-529-341-11	SPEAKER (10cm) (L)	

7-2. REAR CABINET SECTION

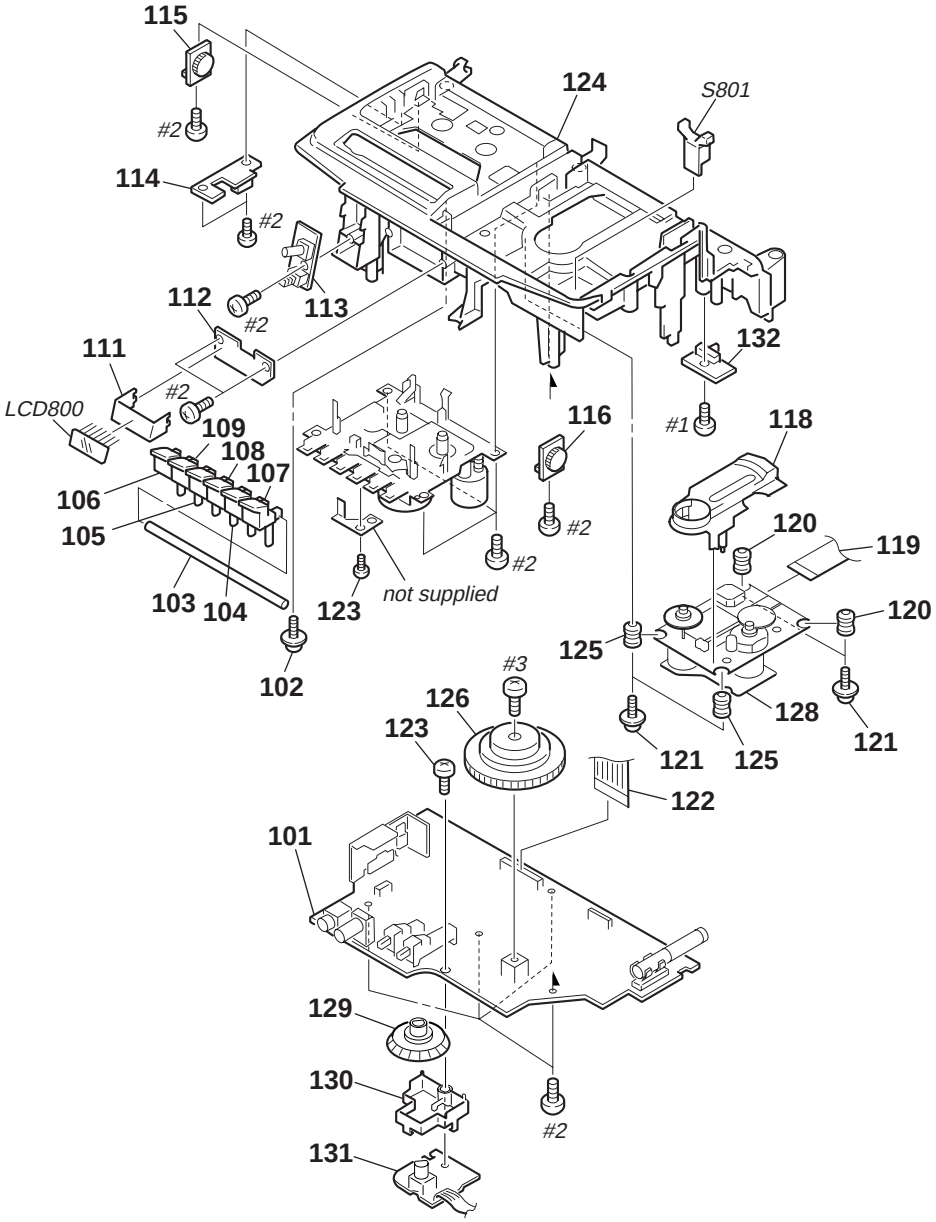


Ref. No.	Part No.	Description	Remarks
51	3-031-561-01	SPRING, CASSETTE UP	
* 52	1-672-956-11	POWER BOARD	
53	1-533-233-31	HOLDER, FUSE	
54	3-031-570-11	KNOB(FUNCTION) (EA)	
55	3-031-550-01	BUTTON (MEGA BASS)	
57	X-3377-296-1	HOLDER ASSY, CASSETTE (EA, AEP, CEF, CET)	
57	X-3377-423-1	HOLDER ASSY, CASSETTE (E, SP)	
58	3-031-538-51	LID(CD) (EA, AEP, CEF, CET)	
58	3-031-538-61	LID(CD) (E, SP)	
59	1-452-899-11	MAGNET	
60	3-019-395-01	PLATE, CHUCKING	
61	3-031-562-01	SPRING (CD) (AEP, CEF, CET)	
61	3-031-562-01	SPRING (CD) (E, EA, SP)	
62	3-031-857-01	TERMINAL, ANTENNA	
63	3-031-540-01	HANDLE (EA, AEP, CEF, CET)	
63	3-031-540-51	HANDLE (E, SP)	

Ref. No.	Part No.	Description	Remarks
* 64	1-672-302-11	BATTERY BOARD	
65	3-028-154-01	TERMINAL (–), BATT	
66	4-960-167-01	SCREW (3 × 8) (DIA. 10), +WH	
* 67	1-672-358-11	HALF BATTERY BOARD	
68	3-036-134-01	LID,BATTERY CASE (E, SP)	
68	3-926-244-81	LID,BATTERY CASE (EA, AEP, CEF, CET)	
69	3-032-549-01	CABINET (REAR) (AEP, CEF, CET)	
69	3-032-549-11	CABINET (REAR) (EA)	
69	3-032-549-21	CABINET (REAR) (E, SP)	
70	3-034-633-01	COVER (VOL SEL) (E, EA, SP)	
71	1-672-960-11	VOLTAGE SELECTION BOARD (E, EA, SP)	
ANT1	1-501-918-21	ANTENNA, TELESCOPIC	
⚠F901	1-532-389-31	FUSE (0.5A/250V) (E, EA, SP)	
⚠F902	1-532-465-31	FUSE (3.15A/250V) (AEP, CEF, CET)	
⚠T901	1-433-580-11	TRANSFORMER, POWER (AEP, CEF, CET)	
⚠T901	1-433-581-11	TRANSFORMER, POWER (E, EA, SP)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

7-3. UPPER CABINET SECTION

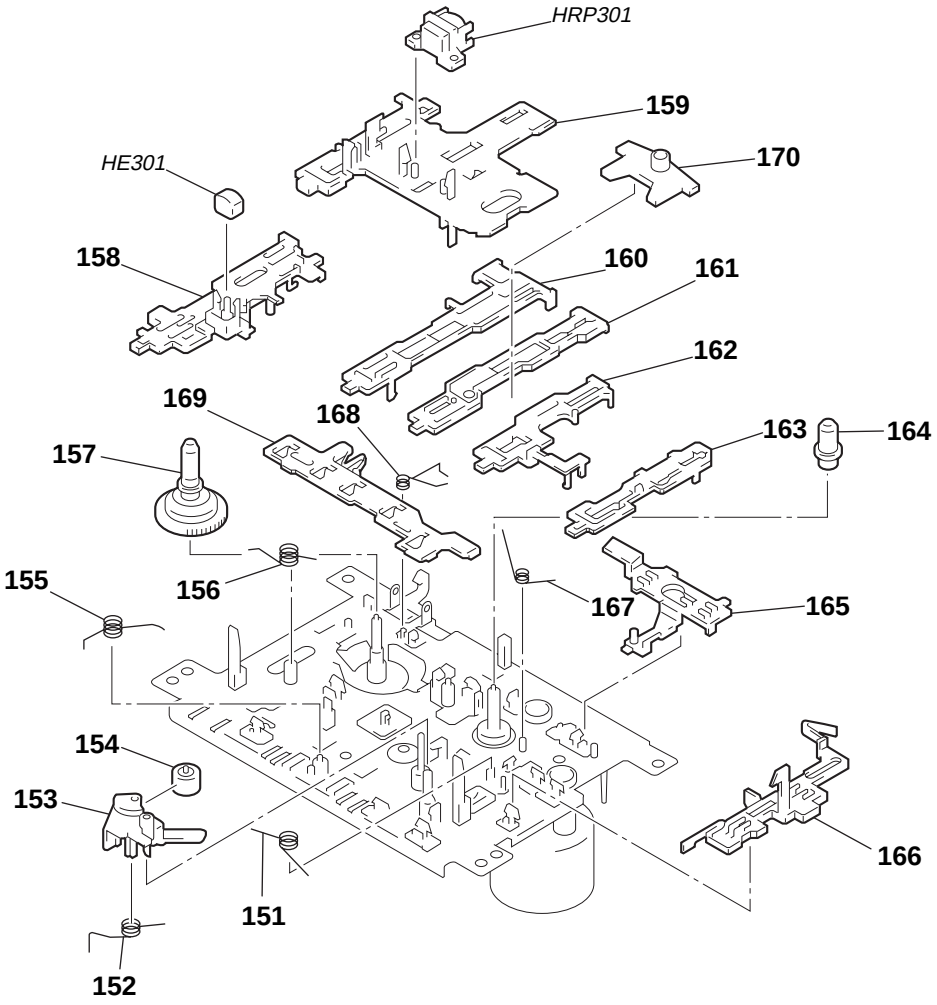


Ref. No.	Part No.	Description	Remarks
* 101	A-3321-964-A	MAIN BOARD, COMPLETE (EA)	
* 101	A-3321-968-A	MAIN BOARD, COMPLETE (E, SP)	
* 101	A-3322-079-A	MAIN BOARD, COMPLETE (AEP,CET)	
* 101	A-3322-080-A	MAIN BOARD, COMPLETE (CEF)	
102	4-960-167-01	SCREW (3 × 8) (DIA. 10), +WH	
103	3-031-560-01	SHAFT (MD)	
104	3-031-545-41	BUTTON (STOP)	
105	3-031-543-41	BUTTON (REW)	
106	3-031-541-41	BUTTON (REC)	
107	3-031-546-41	BUTTON (PAUSE)	
108	3-031-544-41	BUTTON (FF)	
109	3-031-542-41	BUTTON (PLAY)	
111	3-018-834-01	HOLDER (406), LCD	
* 112	1-672-957-11	LCD BOARD	
* 113	1-672-473-11	VOLUME BOARD (AEP, CEF, CET)	
* 113	1-672-959-11	VOLUME BOARD (E, EA, SP)	
114	1-672-955-11	RECORD SWITCH BOARD	
115	3-922-112-21	DAMPER	
116	3-922-112-31	DAMPER (AEP, CEF, CET)	

Ref. No.	Part No.	Description	Remarks
116	3-922-112-41	DAMPER (E, EA, SP)	
118	3-923-736-01	COVER, CD	
119	1-777-955-11	WIRE (FLAT TYPE) (16 CORE)	
120	3-910-095-31	RUBBER, VIBRATION PROOF	
121	3-921-725-01	SCREW (2.6 × 10), +PWH	
122	1-773-119-11	WIRE (FLAT TYPE) (19 CORE)	
123	4-951-620-01	SCREW (2.6 × 8), +BVTP	
124	3-031-537-61	CABINET (UPPER) (EA, AEP, CEF, CET)	
124	3-031-537-71	CABINET (UPPER) (E, SP)	
125	3-910-095-21	RUBBER, VIBRATION PROOF	
126	3-032-102-01	GEAR (PVC) (3 BAND) (EA)	
* 128	1-639-678-12	CDMOTOR BOARD	
129	3-031-554-01	KNOB (FT) (EA)	
130	3-031-555-01	CHASSIS (FT) (EA)	
131	1-672-961-11	FINE TUNING BOARD	
132	1-672-776-11	MONO ST BOARD (AEP, CEF, CET)	
S801	1-692-960-11	SWITCH, PUSH (1 KEY)	
LCD800	1-801-913-11	DISPLAY PANEL, LIQUID CRYSTAL	

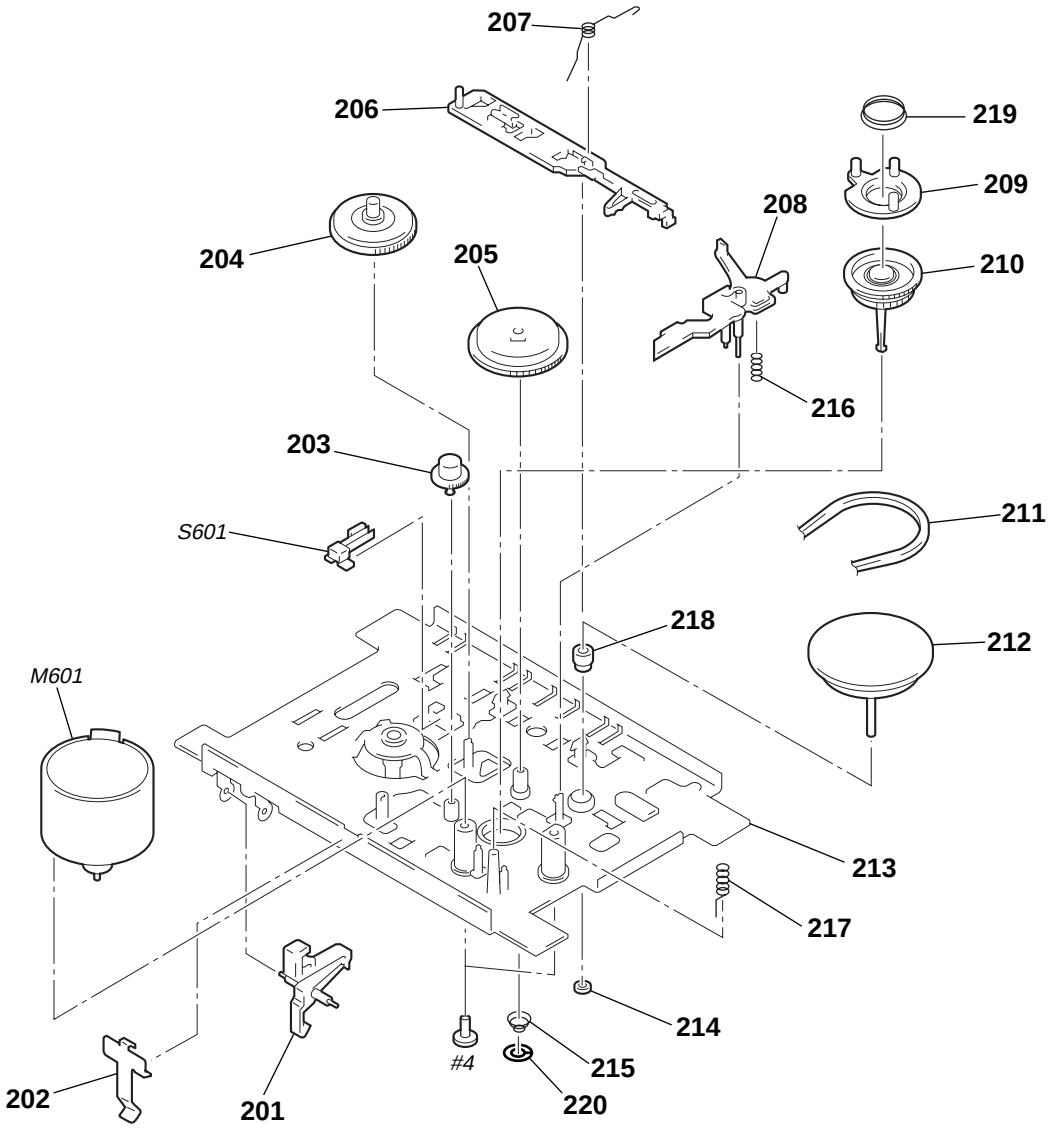
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

7-4. MECHANISM DECK SECTION (1)
(MF-V10-117)



Ref. No.	Part No.	Description	Remarks
151	3-933-010-01	SPRING (S/P), TORSION	
152	3-933-025-01	SPRING (P), TORSION	
153	3-933-026-01	LEVER (P)	
154	3-933-024-01	ROLLER, PINCH	
155	3-933-019-01	SPRING (F/R), TORSION	
156	3-933-028-01	SPRING (FWD), TORSION	
157	3-933-016-01	GEAR (S REEL)	
158	3-008-590-01	SLIDER (REC)	
159	3-008-592-01	BASE (H), HEAD	
* 160	3-008-588-01	SLIDER (REW)	
* 161	3-008-589-13	SLIDER (FF)	
* 162	3-008-587-01	SLIDER (STOP)	
* 163	3-008-591-01	SLIDER (PAUSE)	
164	3-933-004-01	CLAW, REEL	
* 165	3-933-021-01	SLIDER (FRP)	
* 166	3-933-006-01	SLIDER (EJECT)	
167	3-934-833-01	SPRING (FRP)	
168	3-022-794-02	SPRING (BT)	
169	3-933-007-01	PLATE, LOCK	
* 170	3-012-114-01	LEVER (FR)	
HE301	1-543-876-11	HEAD (ERASE)	
HRP301	1-500-454-11	HEAD,MAGNETIC(RECORD/PLAYBACK)	

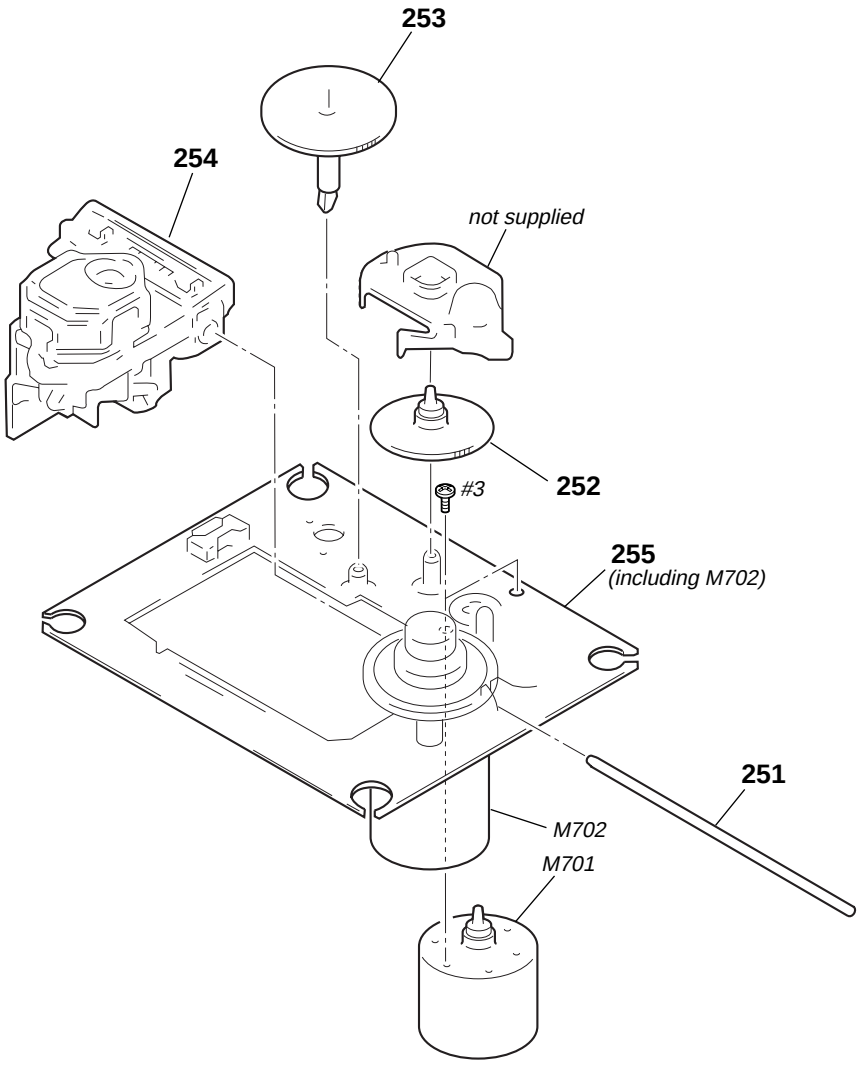
7-5. MECHANISM DECK SECTION (2)
(MF-V10-117)



Ref. No.	Part No.	Description	Remarks
201	3-933-029-01	LEVER, ERASING PREVENTION	
202	3-933-182-01	SPRING, CASSETTE	
203	3-932-995-01	GEAR (MID)	
204	X-3371-667-1	CLUTCH ASSY	
205	3-932-997-01	GEAR (CAM)	
* 206	3-932-999-01	SLIDER (SW)	
207	3-932-998-01	SPRING (GROUND), TORSION	
208	3-009-648-01	LEVER (S.OFF)	
209	3-936-438-01	LEVER (K)	
210	X-3373-572-1	REEL ASSY (N), T	
211	3-933-020-01	BELT	

Ref. No.	Part No.	Description	Remarks
212	X-3372-924-1	FLYWHEEL ASSY	
213	3-932-993-01	CHASSIS, OUTSERT	
214	3-343-358-01	RING, RETAINING	
215	3-933-005-01	SPRING (CAM), COMPRESSION	
216	3-939-383-02	SPRING, COMPRESSION	
217	3-937-760-01	SPRING (GROUND), COMPRESSION	
218	3-934-336-01	BEARING	
219	3-009-650-02	SPRING (K), COMPRESSION	
220	3-016-349-01	WASHER	
M601	A-3320-446-A	MOTOR ASSY(LOADING)(WITH PULLEY)	
S601	1-762-679-11	SWITCH, LEAF(MD POWER)	

7-6. OPTICAL PICK-UP SECTION (KSM-213CDM)



Ref. No.	Part No.	Description	Remarks
251	2-626-908-01	SHAFT, SLED	
252	2-627-003-02	GEAR (B)(RP)	
253	2-626-907-01	GEAR (A)(S)	
⚠254	8-848-483-05	OPTICAL PICK-UP KSS-213C	
255	X-2626-202-1	CHASSIS ASSY (MB)(RP), MOTOR (SPINDLE) (INCLUDING M702)	
M701	X-2625-769-1	GEAR ASSY (MB)(RP), MOTOR (SLED)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: µH
- Abbreviation
  EA : Saudi Arabia model
  SP : Singapore model
  CEF : Italian model
  CET : East European and Russian model
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
*	1-672-302-11	BATTERY BOARD			
		**********			
	3-028-154-01	TERMINAL (-), BATT			
**********					
*	1-639-678-12	CD MOTOR BOARD			
		**********			
		< CONNECTOR >			
CNP707	1-564-722-11	PIN, CONNECTOR (SMALL TYPE) 6P			
		< SWITCH >			
S701	1-572-085-11	SWITCH, LEAF (LIMIT)			
**********					
*	1-673-261-11	CONNECTOR BOARD			
		**********			
		< CONNECTOR >			
* CNP803	1-785-673-11	PIN, CONNECTOR (PC BOARD) 7P			
**********					
*	1-672-958-11	CONTROL BOARD			
		**********			
		< RESISTOR >			
R860	1-249-417-11	CARBON	1K	5%	1/4W F (E,EA,SP)
R861	1-249-417-11	CARBON	1K	5%	1/4W F (E,EA,SP)
R862	1-249-417-11	CARBON	1K	5%	1/4W F (E,EA,SP)
R863	1-249-417-11	CARBON	1K	5%	1/4W F (E,EA,SP)
		< SWITCH >			
S801	1-762-798-11	SWITCH, KEYBOARD (MODE)			
S802	1-762-798-11	SWITCH, KEYBOARD (DISPLAY/ENTER)			
S803	1-762-798-11	SWITCH, KEYBOARD (PLAY)			
S804	1-762-798-11	SWITCH, KEYBOARD (STOP)			
S805	1-762-798-11	SWITCH, KEYBOARD (FR)			
S806	1-762-798-11	SWITCH, KEYBOARD (FF)			
**********					
*	1-672-961-11	FINE TUNING BOARD			
		**********			
		< CAPACITOR >			
C91	1-162-294-31	CERAMIC	0.001uF	10%	50V
		< RESISTOR >			
R90	1-249-417-11	CARBON	1K	5%	1/4W F
R91	1-249-431-11	CARBON	15K	5%	1/4W
		< VARIABLE RESISTOR >			
RV91	1-223-598-11	RES, VAR, CARBON 100K (FINE TUNING)			
**********					
*	1-672-358-11	HALF BATTERY BOARD			
		**********			
	3-028-154-01	TERMINAL (–), BATT			
		< CONNECTOR >			
* CNP908	1-785-668-11	PIN, CONNECTOR (PC BOARD) 2P			
**********					
*	1-672-957-11	LCD BOARD			
		**********			
	3-018-845-01	HOLDER(406), LCD			
		< CONNECTOR >			
CNP801	1-695-380-31	PIN, CONNECTOR (PC BOARD) 19P			
		< LIQUID CRYSTAL DISPLAY >			
LCD800	1-801-913-11	DISPLAY PANEL, LIQUID CRYSTAL			
**********					
*	A-3321-964-A	MAIN BOARD, COMPLETE (EA)			
		**********			
*	A-3321-968-A	MAIN BOARD, COMPLETE (E, SP)			
		**********			
*	A-3322-079-A	MAIN BOARD, COMPLETE (AEP,CET)			
		**********			
*	A-3322-080-A	MAIN BOARD, COMPLETE (CEF)			
		**********			
	3-031-554-01	KNOB(FT) (E, SP, AEP, CEF, CET)			
	3-031-555-01	CHASSIS (FT) (E, SP, AEP, CEF, CET)			
	3-031-570-11	KNOB(FUNCTION) (E, SP, AEP, CEF, CET)			
	3-032-102-01	GEAR(PVC) (3 BAND) (E, SP, AEP, CEF, CET)			
	4-951-620-01	SCREW(2.6 × 8), +BVTP (E, SP, AEP, CEF, CET)			
	7-621-775-20	SCREW+B 2.6 × 5 (E, SP, AEP, CEF, CET)			
	7-685-647-79	SCREW+BVTP 3 × 10 TYPE2 N-S (E, SP, AEP, CEF, CET)			

Ref. No.	Part No.	Description			Remarks
		< CAPACITOR >			
C1	1-162-215-31	CERAMIC	47PF	5%	50V
C4	1-124-907-11	ELECT	10uF	20%	50V
C5	1-162-205-31	CERAMIC	18PF	5%	50V
					(E, EA, SP, CEF)
C5	1-162-206-31	CERAMIC	20PF	5%	50V
					(AEP,CET)
C6	1-162-191-31	CERAMIC	2.2PF	10%	50V(EA)
C7	1-162-201-31	CERAMIC	12PF	5%	50V
C8	1-162-193-31	CERAMIC	3.3PF	10%	50V
					(E, EA, SP)
C8	1-162-191-31	CERAMIC	2.2PF	10%	50V
					(AEP,CEF,CET)
C9	1-162-306-11	CERAMIC	0.01uF	20%	16V
C10	1-102-960-00	CERAMIC	24PF	5%	50V
					(E,SP,AEP,CET)
C10	1-102-961-00	CERAMIC	27PF	5%	50V
					(EA,CEF)
C11	1-162-306-11	CERAMIC	0.01uF	20%	16V
C12	1-162-306-11	CERAMIC	0.01uF	20%	16V
C15	1-126-963-11	ELECT	4.7uF	20%	50V
C16	1-124-903-11	ELECT	1uF	20%	50V
C17	1-104-664-11	ELECT	47uF	20%	10V
C18	1-127-876-21	CERAMIC	0.01uF	10%	50V
C19	1-127-876-21	CERAMIC	0.01uF	10%	50V
C20	1-124-903-11	ELECT	1uF	20%	50V
C21	1-126-961-11	ELECT	2.2uF	20%	50V
C22	1-104-664-11	ELECT	47uF	20%	10V
C23	1-124-902-00	ELECT	0.47uF	20%	50V
C24	1-126-963-11	ELECT	4.7uF	20%	50V
C27	1-104-664-11	ELECT	47uF	20%	10V
C28	1-162-306-11	CERAMIC	0.01uF	20%	16V
C36	1-102-942-00	CERAMIC	5.0PF	+-0.5PF	50V
C38	1-164-617-11	CERAMIC	4PF	5%	50V
C42	1-110-342-11	FILM	390PF	5%	63V
C43	1-136-683-11	FILM	0.0056uF	5%	63V
C44	1-130-726-00	FILM	0.0015uF	5%	63V
C45	1-162-294-31	CERAMIC	0.001uF	10%	50V
C47	1-162-282-31	CERAMIC	100PF	10%	50V
					(E, EA, SP)
C48	1-162-294-31	CERAMIC	0.001uF	10%	50V
C52	1-162-206-31	CERAMIC	20PF	5%	50V
C54	1-162-205-31	CERAMIC	18PF	5%	50V
C56	1-162-306-11	CERAMIC	0.01uF	20%	16V
C57	1-162-294-31	CERAMIC	0.001uF	10%	50V
C60	1-162-294-31	CERAMIC	0.001uF	10%	50V
					(AEP,CEF,CET)
C101	1-162-301-11	CERAMIC	0.0015uF	20%	16V
C102	1-104-664-11	ELECT	47uF	20%	10V
C103	1-127-883-21	CERAMIC	0.039uF	10%	50V
C104	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C105	1-162-215-31	CERAMIC	47PF	5%	50V
C108	1-126-956-91	ELECT	0.1uF	20%	50V
C109	1-124-903-11	ELECT	1uF	20%	50V
C121	1-124-903-11	ELECT	1uF	20%	50V
C122	1-127-885-21	CERAMIC	0.056uF	10%	50V
C140	1-124-252-00	ELECT	0.33uF	20%	50V
C151	1-104-664-11	ELECT	47uF	20%	10V
C152	1-162-294-31	CERAMIC	0.001uF	10%	50V

Ref. No.	Part No.	Description			Remarks
C153	1-124-443-00	ELECT	100uF	20%	10V
C154	1-124-443-00	ELECT	100uF	20%	10V
C155	1-104-664-11	ELECT	47uF	20%	10V
C156	1-136-165-00	FILM	0.1uF	5%	50V
C157	1-127-883-21	CERAMIC	0.039uF	10%	50V
C158	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C159	1-104-664-11	ELECT	47uF	20%	10V
C160	1-136-165-00	FILM	0.1uF	5%	50V
C161	1-124-443-00	ELECT	100uF	20%	10V
C162	1-124-907-11	ELECT	10uF	20%	50V
C201	1-162-301-11	CERAMIC	0.0015uF	20%	16V
C202	1-104-664-11	ELECT	47uF	20%	10V
C203	1-127-883-21	CERAMIC	0.039uF	10%	50V
C204	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C205	1-162-215-31	CERAMIC	47PF	5%	50V
C208	1-126-956-91	ELECT	0.1uF	20%	50V
C209	1-124-903-11	ELECT	1uF	20%	50V
C221	1-124-903-11	ELECT	1uF	20%	50V
C222	1-127-885-21	CERAMIC	0.056uF	10%	50V
C240	1-124-252-00	ELECT	0.33uF	20%	50V
C251	1-104-664-11	ELECT	47uF	20%	10V
C252	1-162-294-31	CERAMIC	0.001uF	10%	50V
C253	1-124-443-00	ELECT	100uF	20%	10V
C254	1-124-443-00	ELECT	100uF	20%	10V
C255	1-104-664-11	ELECT	47uF	20%	10V
C256	1-136-165-00	FILM	0.1uF	5%	50V
C257	1-127-883-21	CERAMIC	0.039uF	10%	50V
C258	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C259	1-104-664-11	ELECT	47uF	20%	10V
C260	1-136-165-00	FILM	0.1uF	5%	50V
C261	1-124-443-00	ELECT	100uF	20%	10V
C262	1-124-907-11	ELECT	10uF	20%	50V
C301	1-124-443-00	ELECT	100uF	20%	10V
C302	1-124-443-00	ELECT	100uF	20%	10V
C303	1-124-907-11	ELECT	10uF	20%	50V
C304	1-124-443-00	ELECT	100uF	20%	10V
C311	1-127-867-21	CERAMIC	1800PF	10%	50V
C312	1-104-664-11	ELECT	47uF	20%	10V
C313	1-130-468-00	MYLAR	560PF	5%	50V
C315	1-162-306-11	CERAMIC	0.01uF	20%	16V
C316	1-126-962-11	ELECT	3.3uF	20%	50V
C317	1-126-233-11	ELECT	22uF	20%	50V
C320	1-101-005-00	CERAMIC	22000PF	50V	
C341	1-126-937-11	ELECT	4700uF	20%	16V
C343	1-162-306-11	CERAMIC	0.01uF	20%	16V
C345	1-162-306-11	CERAMIC	0.01uF	30%	16V
C346	1-162-306-11	CERAMIC	0.01uF	30%	16V
C347	1-126-925-11	ELECT	470uF	20%	10V
C348	1-104-666-11	ELECT	220uF	20%	10V
C359	1-162-306-11	CERAMIC	0.01uF	20%	16V
C401	1-124-903-11	ELECT	1uF	20%	50V
C701	1-162-600-11	CERAMIC	0.0047uF	20%	16V
C702	1-162-306-11	CERAMIC	0.01uF	20%	16V
C703	1-162-305-11	CERAMIC	0.0068uF	20%	16V
C704	1-130-491-00	MYLAR	0.047uF	5%	50V
C705	1-162-306-11	CERAMIC	0.01uF	20%	16V
C706	1-104-664-11	ELECT	47uF	20%	10V
C707	1-161-494-00	CERAMIC	0.022uF	25V	
C708	1-136-165-00	FILM	0.1uF	5%	50V
C709	1-136-165-00	FILM	0.1uF	5%	50V

MAIN

Ref. No.	Part No.	Description			Remarks
C710	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C711	1-162-202-31	CERAMIC	13PF	5%	50V
C712	1-162-294-31	CERAMIC	0.001uF	10%	50V
C713	1-136-165-00	FILM	0.1uF	5%	50V
C714	1-136-165-00	FILM	0.1uF	5%	50V
C715	1-124-907-11	ELECT	10uF	20%	50V
C716	1-136-165-00	FILM	0.1uF	5%	50V
C717	1-130-483-00	MYLAR	0.01uF	5%	50V
C718	1-131-377-00	TANTALUM	10uF	10%	10V
C719	1-104-664-11	ELECT	47uF	20%	10V
C720	1-162-306-11	CERAMIC	0.01uF	20%	16V
C721	1-130-483-00	MYLAR	0.01uF	5%	50V
C722	1-130-489-00	MYLAR	0.033uF	5%	50V
C723	1-162-306-11	CERAMIC	0.01uF	20%	16V
C724	1-130-489-00	MYLAR	0.033uF	5%	50V
C725	1-130-486-00	MYLAR	0.018uF	10%	50V
C726	1-162-306-11	CERAMIC	0.01uF	20%	16V
C727	1-162-199-31	CERAMIC	10PF	5%	50V
C728	1-104-664-11	ELECT	47uF	20%	10V
C729	1-126-962-11	ELECT	3.3uF	20%	50V
C730	1-130-493-00	MYLAR	0.068uF	5%	50V
C731	1-162-215-31	CERAMIC	47PF	5%	50V
C732	1-162-306-11	CERAMIC	0.01uF	20%	16V
C733	1-162-282-31	CERAMIC	100PF	10%	50V
C734	1-162-282-31	CERAMIC	100PF	10%	50V
C735	1-162-282-31	CERAMIC	100PF	10%	50V
C736	1-162-294-31	CERAMIC	0.001uF	10%	50V
C737	1-161-494-00	CERAMIC	0.022uF	25V	
C739	1-162-282-31	CERAMIC	100PF	10%	50V
C740	1-162-282-31	CERAMIC	100PF	10%	50V
C741	1-127-878-21	CERAMIC	0.015uF	10%	50V
C742	1-162-306-11	CERAMIC	0.01uF	20%	16V
C743	1-104-664-11	ELECT	47uF	20%	10V
C744	1-126-925-11	ELECT	470uF	20%	10V
C761	1-162-294-31	CERAMIC	0.001uF	10%	50V
C799	1-130-489-00	MYLAR	0.033uF	5%	50V
C801	1-104-664-11	ELECT	47uF	20%	10V
C802	1-126-233-11	ELECT	22uF	20%	50V
C805	1-126-963-11	ELECT	4.7uF	20%	50V
C806	1-126-963-11	ELECT	4.7uF	20%	50V
C807	1-162-292-31	CERAMIC	680PF	10%	50V
C808	1-162-292-31	CERAMIC	680PF	10%	50V
C809	1-162-284-31	CERAMIC	150PF	10%	50V
C810	1-162-284-31	CERAMIC	150PF	10%	50V
C811	1-124-907-11	ELECT	10uF	20%	50V
C812	1-162-306-11	CERAMIC	0.01uF	20%	16V
C814	1-162-306-11	CERAMIC	0.01uF	20%	16V
C815	1-162-203-31	CERAMIC	15PF	5%	50V
C816	1-162-203-31	CERAMIC	15PF	5%	50V
C817	1-162-306-11	CERAMIC	0.01uF	20%	16V
C818	1-162-306-11	CERAMIC	0.01uF	20%	16V
C819	1-162-306-11	CERAMIC	0.01uF	20%	16V
C820	1-137-194-81	FILM	0.47uF	5%	50V
C821	1-162-306-11	CERAMIC	0.01uF	20%	16V
C822	1-162-290-31	CERAMIC	470PF	10%	50V
C823	1-162-286-21	CERAMIC	220PF	10%	50V
C824	1-136-169-00	FILM	0.22uF	5%	50V
C825	1-162-306-11	CERAMIC	0.01uF	20%	16V
C826	1-162-306-11	CERAMIC	0.01uF	20%	16V
C828	1-162-306-11	CERAMIC	0.01uF	20%	16V
C829	1-162-306-11	CERAMIC	0.01uF	20%	16V
C831	1-162-306-11	CERAMIC	0.01uF	20%	16V

< FILTER >

CF1	1-760-738-61	FILTER, CERAMIC (10.7MHz)
CF2	1-781-403-11	FILTER, CERAMIC (455kHz)

< CONNECTOR >

*	CNP301	1-785-656-11	PIN, CONNECTOR (PC BOARD) 4P
*	CNP303	1-785-656-11	PIN, CONNECTOR (PC BOARD) 4P
*	CNP304	1-785-656-11	PIN, CONNECTOR (PC BOARD) 4P
	CNP702	1-770-646-11	CONNECTOR, FFC/FPC 16P
	CNP802	1-695-342-31	PIN, CONNECTOR (PC BOARD) 19P

< TRIMMER >

CT1-4	1-141-583-11	CAP, VAR (INCLUDING CV1)
CT5	1-141-486-11	CAP, ADJ 10PF
CT6	1-141-485-11	CAP, ADJ 5PF
CT9	1-141-485-11	CAP, ADJ 5PF
CT10	1-141-485-11	CAP, ADJ 5PF

< VARIABLE CAPACITOR >

CV1	1-141-583-11	CAP, VAR (TUNING)

< DIODE >

D1	8-719-991-33	DIODE 1SS133T-77
D2	8-719-991-33	DIODE 1SS133T-77
D3	8-719-991-33	DIODE 1SS133T-77
D4	8-719-991-33	DIODE 1SS133T-77
D301	8-719-991-33	DIODE 1SS133T-77
D302	8-719-991-33	DIODE 1SS133T-77
D307	8-719-991-33	DIODE 1SS133T-77
D308	8-719-109-90	DIODE RD5.6ESB3
D310	8-719-038-29	LED SLP-181B-51(OPR/BATT)
D311	8-719-109-98	DIODE RD6.8ES-B3
D312	8-719-991-33	DIODE 1SS133T-77
D314	8-719-991-33	DIODE 1SS133T-77
D401	8-719-991-33	DIODE 1SS133T-77
D402	8-719-991-33	DIODE 1SS133T-77
D403	8-719-991-33	DIODE 1SS133T-77
D404	8-719-991-33	DIODE 1SS133T-77
D406	8-719-991-33	DIODE 1SS133T-77
D407	8-719-991-33	DIODE 1SS133T-77
D408	8-719-991-33	DIODE 1SS133T-77
D409	8-719-991-33	DIODE 1SS133T-77
D410	8-719-991-33	DIODE 1SS133T-77
D411	8-719-991-33	DIODE 1SS133T-77
D801	8-719-991-33	DIODE 1SS133T-77

< IC >

IC1	8-752-056-23	IC CXA1538S
IC301	8-759-264-71	IC TA2068N
IC303	8-759-426-51	IC BA5417
IC304	8-759-426-51	IC BA5417
IC701	8-752-082-14	IC CXA1992BR
IC702	8-752-891-81	IC CXP401-602R
IC703	8-759-473-42	IC BA6898FP

< JACK >

J301	1-568-267-11	JACK(PHONES)

Ref. No.	Part No.	Description				Remarks
		< CABLE HOLDER >				
* KH306	1-565-386-11	HOLDER, CABLE 5P				
* KH803	1-568-135-21	HOLDER, CABLE 7P				
* KH902	1-565-385-11	HOLDER, CABLE 4P				
		< COIL >				
L1	1-406-998-11	COIL, AIR-CORE				
L2	1-416-509-11	COIL, AIR-CORE (E,SP,AEP,CET)				
L2	1-406-957-21	COIL(WITH CORE) (EA,CEF)				
L3	1-754-028-11	ANTENNA, FERRITE-ROD (MW)				
L4	1-406-253-11	COIL(OSC)				
L5	1-402-597-31	COIL(ANT)				
L6	1-406-247-11	COIL(OSC)				
L7	1-416-843-11	COIL(ANT)				
L8	1-406-470-11	COIL(OSC)				
L9	1-412-482-11	INDUCTOR 0.33uH				
L701	1-412-911-11	FERRITE 0uH				
		< TRANSISTOR >				
Q1	8-729-029-72	TRANSISTOR DTC114YSA				
Q2	8-729-922-66	TRANSISTOR 2SC2410SN				
Q101	8-729-036-80	TRANSISTOR KRC110M				
Q102	8-729-194-57	TRANSISTOR 2SC945-P				
Q103	8-729-194-57	TRANSISTOR 2SC945-P				
Q201	8-729-036-80	TRANSISTOR KRC110M				
Q202	8-729-194-57	TRANSISTOR 2SC945-P				
Q203	8-729-194-57	TRANSISTOR 2SC945-P				
Q301	8-729-281-53	TRANSISTOR 2SC1815-GR				
Q307	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q308	8-729-036-57	TRANSISTOR KRC101M-AT				
Q309	8-729-021-82	TRANSISTOR 2SD2396K				
Q310	8-729-011-92	TRANSISTOR 2SC2001TP-K1K2				
Q401	8-729-029-72	TRANSISTOR DTC114YSA				
Q402	8-729-029-72	TRANSISTOR DTC114YSA				
Q403	8-729-029-72	TRANSISTOR DTC114YSA				
Q404	8-729-230-45	TRANSISTOR 2SC2458-YGR				
Q405	8-729-037-29	TRANSISTOR KRA102M				
Q406	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q407	8-729-029-72	TRANSISTOR DTC114YSA				
Q408	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q409	8-729-011-92	TRANSISTOR 2SC2001TP-K1K2				
Q701	8-729-195-23	TRANSISTOR 2SA952				
Q801	8-729-036-67	TRANSISTOR KRC111M-AT				
		< RESISTOR >				
R1	1-249-411-11	CARBON	330	5%	1/4W	
R3	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R5	1-249-411-11	CARBON	330	5%	1/4W	
R6	1-249-441-11	CARBON	100K	5%	1/4W	
R7	1-249-403-11	CARBON	68	5%	1/4W	F
R11	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R12	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R14	1-249-429-11	CARBON	10K	5%	1/4W	
R15	1-249-429-11	CARBON	10K	5%	1/4W (AEP,CEF,CET)	
R17	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R18	1-249-417-11	CARBON	1K	5%	1/4W	F
R32	1-249-441-11	CARBON	100K	5%	1/4W	
R40	1-249-402-11	CARBON	56	5%	1/4W	F
R47	1-249-429-11	CARBON	10K	5%	1/4W	
R101	1-249-431-11	CARBON	15K	5%	1/4W	
R102	1-249-404-00	CARBON	82	5%	1/4W	F
R103	1-249-441-11	CARBON	100K	5%	1/4W	
R104	1-247-843-11	CARBON	3.3K	5%	1/4W	
R105	1-249-434-11	CARBON	27K	5%	1/4W	
R106	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R109	1-249-426-11	CARBON	5.6K	5%	1/4W	
R110	1-247-807-31	CARBON	100	5%	1/4W	
R121	1-249-415-11	CARBON	680	5%	1/4W	F
R122	1-247-843-11	CARBON	3.3K	5%	1/4W	
R123	1-247-895-91	CARBON	470K	5%	1/4W	
R124	1-247-815-91	CARBON	220	5%	1/4W	F
R140	1-249-441-11	CARBON	100K	5%	1/4W	
R141	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R143	1-249-429-11	CARBON	10K	5%	1/4W	
R151	1-249-417-11	CARBON	1K	5%	1/4W	F
R153	1-249-411-11	CARBON	330	5%	1/4W	
R154	1-247-807-31	CARBON	100	5%	1/4W	
R155	1-249-431-11	CARBON	15K	5%	1/4W	
R156	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R157	1-249-411-11	CARBON	330	5%	1/4W	
R158	1-249-432-11	CARBON	18K	5%	1/4W	
R159	1-249-414-11	CARBON	560	5%	1/4W	F
R160	1-249-385-11	CARBON	2.2	5%	1/6W	F
R161	1-249-385-11	CARBON	2.2	5%	1/6W	F
R162	1-249-417-11	CARBON	1K	5%	1/4W	F
R201	1-249-431-11	CARBON	15K	5%	1/4W	
R202	1-249-404-00	CARBON	82	5%	1/4W	F
R203	1-249-441-11	CARBON	100K	5%	1/4W	
R204	1-247-843-11	CARBON	3.3K	5%	1/4W	
R205	1-249-434-11	CARBON	27K	5%	1/4W	
R206	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R209	1-249-426-11	CARBON	5.6K	5%	1/4W	
R210	1-247-807-31	CARBON	100	5%	1/4W	
R221	1-249-415-11	CARBON	680	5%	1/4W	F
R222	1-247-843-11	CARBON	3.3K	5%	1/4W	
R223	1-247-895-91	CARBON	470K	5%	1/4W	
R224	1-247-815-91	CARBON	220	5%	1/4W	F
R240	1-249-441-11	CARBON	100K	5%	1/4W	
R241	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R243	1-249-429-11	CARBON	10K	5%	1/4W	
R251	1-249-417-11	CARBON	1K	5%	1/4W	F
R253	1-249-411-11	CARBON	330	5%	1/4W	
R254	1-247-807-31	CARBON	100	5%	1/4W	
R255	1-249-431-11	CARBON	15K	5%	1/4W	
R256	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R257	1-249-411-11	CARBON	330	5%	1/4W	
R258	1-249-432-11	CARBON	18K	5%	1/4W	
R259	1-249-414-11	CARBON	560	5%	1/4W	F
R260	1-249-385-11	CARBON	2.2	5%	1/6W	F
R261	1-249-385-11	CARBON	2.2	5%	1/6W	F
R262	1-249-417-11	CARBON	1K	5%	1/4W	F
R301	1-247-903-00	CARBON	1M	5%	1/4W	
R302	1-249-441-11	CARBON	100K	5%	1/4W	
R303	1-249-417-11	CARBON	1K	5%	1/4W	F
R305	1-247-903-00	CARBON	1M	5%	1/4W	
R306	1-249-429-11	CARBON	10K	5%	1/4W	
R307	1-249-429-11	CARBON	10K	5%	1/4W	
R309	1-249-417-11	CARBON	1K	5%	1/4W	F
R311	1-249-406-11	CARBON	120	5%	1/4W	F
R312	1-249-427-11	CARBON	6.8K	5%	1/4W	F

MAIN **MONO ST** **POWER**

Ref. No.	Part No.	Description			Remarks
R313	1-249-393-11	CARBON	10	5%	1/4W F
R314	1-249-425-11	CARBON	4.7K	5%	1/4W F
R315	1-247-863-91	CARBON	22K	5%	1/4W
R319	1-249-425-11	CARBON	4.7K	5%	1/4W F
R341	1-249-437-11	CARBON	47K	5%	1/4W
R342	1-249-419-11	CARBON	1.5K	5%	1/4W F
R343	1-249-415-11	CARBON	680	5%	1/4W F
R344	1-247-815-91	CARBON	220	5%	1/4W
R345	1-247-815-91	CARBON	220	5%	1/4W
R346	1-249-421-11	CARBON	2.2K	5%	1/4W F
R347	1-247-807-31	CARBON	100	5%	1/4W
R348	1-249-421-11	CARBON	2.2K	5%	1/4W F
R349	1-249-414-11	CARBON	560	5%	1/4W F
R350	1-249-393-11	CARBON	10	5%	1/4W F
R401	1-247-895-91	CARBON	470K	5%	1/4W
R402	1-247-903-00	CARBON	1M	5%	1/4W
R404	1-249-421-11	CARBON	2.2K	5%	1/4W F
R407	1-249-441-11	CARBON	100K	5%	1/4W
R411	1-249-429-11	CARBON	10K	5%	1/4W
R412	1-247-895-91	CARBON	470K	5%	1/4W
R413	1-249-429-11	CARBON	10K	5%	1/4W
R414	1-247-863-91	CARBON	22K	5%	1/4W
R415	1-249-425-11	CARBON	4.7K	5%	1/4W F
R701	1-249-440-11	CARBON	82K	5%	1/4W
R702	1-249-439-11	CARBON	68K	5%	1/4W
R703	1-249-439-11	CARBON	68K	5%	1/4W
R704	1-249-439-11	CARBON	68K	5%	1/4W
R705	1-249-439-11	CARBON	68K	5%	1/4W
R706	1-249-440-11	CARBON	82K	5%	1/4W
R707	1-247-887-00	CARBON	220K	5%	1/4W
R709	1-247-883-00	CARBON	150K	5%	1/4W
R710	1-247-885-00	CARBON	180K	5%	1/4W
R711	1-247-883-00	CARBON	150K	5%	1/4W
R712	1-247-891-00	CARBON	330K	5%	1/4W
R714	1-249-429-11	CARBON	10K	5%	1/4W
R715	1-247-856-00	CARBON	11K	5%	1/4W
R716	1-249-429-11	CARBON	10K	5%	1/4W
R717	1-247-891-00	CARBON	330K	5%	1/4W
R718	1-247-899-11	CARBON	680K	5%	1/4W
R719	1-249-393-11	CARBON	10	5%	1/4W F
R720	1-247-858-11	CARBON	13K	5%	1/4W
R721	1-247-863-91	CARBON	22K	5%	1/4W
R722	1-249-441-11	CARBON	100K	5%	1/4W
R723	1-247-896-11	CARBON	510K	5%	1/4W
R724	1-249-439-11	CARBON	68K	5%	1/4W
R725	1-247-883-00	CARBON	150K	5%	1/4W
R726	1-247-876-11	CARBON	75K	5%	1/4W
R727	1-249-437-11	CARBON	47K	5%	1/4W
R728	1-249-441-11	CARBON	100K	5%	1/4W
R729	1-249-430-11	CARBON	12K	5%	1/4W
R730	1-249-435-11	CARBON	33K	5%	1/4W
R731	1-247-863-91	CARBON	22K	5%	1/4W
R734	1-247-843-11	CARBON	3.3K	5%	1/4W
R735	1-249-427-11	CARBON	6.8K	5%	1/4W F
R736	1-247-863-91	CARBON	22K	5%	1/4W
R737	1-247-843-11	CARBON	3.3K	5%	1/4W
R738	1-249-435-11	CARBON	33K	5%	1/4W
R798	1-249-428-11	CARBON	8.2K	5%	1/4W F
R801	1-249-429-11	CARBON	10K	5%	1/4W
R803	1-249-430-11	CARBON	12K	5%	1/4W

Ref. No.	Part No.	Description			Remarks
R804	1-249-430-11	CARBON	12K	5%	1/4W
R805	1-249-430-11	CARBON	12K	5%	1/4W
R806	1-249-430-11	CARBON	12K	5%	1/4W
R807	1-249-430-11	CARBON	12K	5%	1/4W
R808	1-249-430-11	CARBON	12K	5%	1/4W
R809	1-249-431-11	CARBON	15K	5%	1/4W
R810	1-249-431-11	CARBON	15K	5%	1/4W
R811	1-249-431-11	CARBON	15K	5%	1/4W
R820	1-249-417-11	CARBON	1K	5%	1/4W F
R821	1-247-807-31	CARBON	100	5%	1/4W
R822	1-247-807-31	CARBON	100	5%	1/4W
R823	1-247-807-31	CARBON	100	5%	1/4W
R828	1-247-815-91	CARBON	220	5%	1/4W
R843	1-249-437-11	CARBON	47K	5%	1/4W
R845	1-247-843-11	CARBON	3.3K	5%	1/4W
R846	1-249-417-11	CARBON	1K	5%	1/4W F
R847	1-249-429-11	CARBON	10K	5%	1/4W
R852	1-247-903-00	CARBON	1M	5%	1/4W
R853	1-247-887-00	CARBON	220K	5%	1/4W
R855	1-249-429-11	CARBON	10K	5%	1/4W

< VARIABLE RESISTOR >

RV1	1-228-995-00	RES, ADJ, METAL22K
RV351	1-225-438-11	RES, VAR, CARBON 20K/20K (TONE)

< SWITCH >

S1	1-771-626-11	SWITCH, LEVER SLIDE (BAND)
S351	1-572-299-11	SWITCH, LEVER SLIDE (FUNCTION)

< TRANSFORMER >

T1	1-409-944-11	COIL(DET)
T2	1-416-845-11	COIL(IFT)
T301	1-416-041-11	TRANSFORMER, BIAS OSCILLATION

< VIBRATOR >

X801	1-760-793-11	VIBRATOR, CERAMIC (16.93MHz)

****

*	1-672-776-11	MONO ST BOARD (AEP,CEF,CET)

****

< CONNECTOR >

* CNP1	1-785-654-11	PIN, CONNECTOR(PC BOARD)2P(AEP,CEF,CET)

< SWITCH >

S302	1-771-060-11	SWITCH, SLIDE (AEP,CEF,CET)

****

*	1-672-956-11	POWER BOARD

****

< CAPACITOR >

C901	1-101-005-00	CERAMIC	22000PF	50V
C902	1-101-005-00	CERAMIC	22000PF	50V
C903	1-101-005-00	CERAMIC	22000PF	50V
C904	1-101-005-00	CERAMIC	22000PF	50V

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
* CNP902	1-785-670-11	PIN, CONNECTOR (PC BOARD) 4P	
* CNP903	1-785-655-11	PIN, CONNECTOR (PC BOARD) 3P	
* CNP905	1-564-752-11	PIN, CONNECTOR (WITH LOCK) 3P (E,EA,SP)	
		< DIODE >	
D901	8-719-046-07	DIODE 2A02M	
D902	8-719-046-07	DIODE 2A02M	
D903	8-719-046-07	DIODE 2A02M	
D904	8-719-046-07	DIODE 2A02M	
		< FUSE >	
⚠F901	1-532-389-31	FUSE (0.5A/250V) (E,EA,SP)	
		< FERRITE BEAD >	
FB901	1-410-397-21	FERRITE BEAD INDUCTOR	
		< FUSE HOLDER >	
FH901	1-533-233-31	HOLDER, FUSE	
FH902	1-533-233-31	HOLDER, FUSE	
		< JACK >	
⚠J901	1-526-838-11	INLET, AC 2P	
		< IC LINK >	
⚠PS901	1-533-597-51	LINK, IC5A	
		< RESISTOR >	
⚠R901	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R902	1-249-413-11	CARBON 470 5% 1/4W	
**********			
	1-672-955-11	RECORD SWITCH BOARD	
		**********	
		< CONNECTOR >	
* CNP302	1-785-656-11	PIN, CONNECTOR (PC BOARD) 4P	
		< SWITCH >	
S301	1-762-565-11	SWITCH, SLIDE (REC/PB)	
**********			
*	1-672-960-11	VOLTAGE SELECTION BOARD (E, EA, SP)	
		**********	
⚠S901	1-552-921-00	SWITCH,POWER(VOLTAGE CHANGE) (E, EA, SP)	
**********			

Ref. No.	Part No.	Description	Remarks
*	1-672-959-11	VOLUME BOARD	
		**********	
		< CABLE HOLDER >	
* KH307	1-568-135-21	HOLDER, CABLE 7P	
		< RESISTOR >	
R308	1-249-417-11	CARBON 1K 5% 1/4W F	
		< VARIABLE RESISTOR >	
RV352	1-225-764-11	RES, VAR, CARBON 20K/20K (VOLUME)	
		< SWITCH >	
S355	1-762-950-11	SWITCH, PUSH (1 KEY) (MEGA BASS)	
**********			
		MISCELLANEOUS	
		**********	
59	1-452-899-11	MAGNET	
119	1-777-955-11	WIRE (FLAT TYPE) (16 CORE)	
122	1-773-119-11	WIRE (FLAT TYPE) (19 CORE)	
204	X-3371-667-1	CLUTCH ASSY	
210	X-3373-572-1	REEL ASSY (N), T	
212	X-3372-924-1	FLYWHEEL ASSY	
ANT1	1-501-918-21	ANTENNA, TELESCOPIC	
⚠F901	1-532-389-31	FUSE (0.5A/250V) (E, EA, SP)	
⚠F902	1-532-465-31	FUSE (3.15A/250V) (AEP, CEF, CET)	
HE301	1-543-876-11	HEAD (ERASE)	
HRP301	1-500-454-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	
LCD800	1-801-913-11	DISPLAY PANEL, LIQUID CRYSTAL	
M601	A-3320-446-A	MOTOR ASSY (LOADING) (WITH PULLEY)	
S601	1-762-679-11	SWITCH, LEAF (MD POWER)	
S801	1-692-960-11	SWITCH, PUSH (1 KEY)	
SP301	1-529-341-11	SPEAKER (10cm) (R)	
SP302	1-529-341-11	SPEAKER (10cm) (L)	
⚠T901	1-433-580-11	TRANSFORMER, POWER (AEP, CEF, CET)	
⚠T901	1-433-581-11	TRANSFORMER, POWER (E, EA, SP)	
		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-569-008-21	ADAPTOR, CONVERSION (2P)(E,EA)	
⚠	1-769-412-13	CORD,POWER	
	3-865-316-31	MANUAL, INSTRUCTION (ENGLISH, SPANISH) (E,EA,SP,AEP)	
	3-865-316-41	MANUAL, INSTRUCTION (FRENCH, GERMAN) (EA,SP,AEP)	
	3-865-316-51	MANUAL, INSTRUCTION (DUTCH, PORTUGUESE)(E,AEP)	
	3-865-316-61	MANUAL, INSTRUCTION (ITALIAN)(CEF)	
	3-865-316-71	MANUAL, INSTRUCTION (POLISH,CZECH,HUNGARIAN)(CET)	
	3-865-316-81	MANUAL, INSTRUCTION (SWEDISH,FINNISH)(CET)	
	3-865-326-21	MANUAL, INSTRUCTION (ARABIC)(EA)	
**********			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-647-79	SCREW +BVTP 3 × 10 TYPE2 N-S	
#2	7-685-647-14	SCREW +BVTP 3 × 10 TYPE2 N-S	
#3	7-682-548-04	SCREW +B 3 × 8	
#4	7-621-775-20	SCREW +B 2.6 × 5	
#5	7-621-770-87	SCREW +B 2.6 × 5	
#6	7-685-648-79	SCREW +BVTP 3 × 12 TYPE2 N-S	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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CFD-V77S

SERVICE MANUAL

AEP Model
E Model

Ver 1.1 1999. 05

CD Section	Model Name Using Similar Mechanism	CFD-V17
	CD Mechanism Type	KSM-213CDM
	Optical Pick-up Name	KSS-213C
Tape deck Section	Model Name Using Similar Mechanism	CFD-V17
	Tape Transport Mechanism Type	MF-V10-117

SPECIFICATIONS

CD player section

System	Compact disc digital audio system
Laser diode properties	Material: GaAlAs Wavelength:780 nm Emission duration : Continuous Laser output : Less than 44.6 µW (This output is the value measured at a distance of about 200 mm from the objective lens surface on the optical pick-up block with 7 mm aperture.)
Spindle speed	200 r/min (rpm) to 500 r/min (rpm) (CLV)
Number of channels	2
Frequency response	20 – 20,000 Hz + 1/-2 dB
Wow and flutter	Below measurable limit

Radio section

Frequency range	FM Italy	87.5 – 108 MHz
	Other European models and Saudi Arabia	87.6 – 107 MHz
	Other models	87.6 – 108 MHz
	MW Italy	526.5 – 1,606.5 kHz
	Other European models and Saudi Arabia	531 – 1,602 kHz
	Other models	530 – 1,605 kHz or 531 – 1,602 kHz
	SW1	2.3 – 7 MHz
	SW2	7 – 22 MHz
IF	FM : 10.7 MHz AM/MW : 455 kHz	
Aerials	FM : Telescopic aerial MW : Built-in ferrite bar aerial	

Cassette-corder section

Recording system	4 -track 2 channel stereo
Fast winding time	Approx. 120 s (sec.) with Sony cassette C-60
Frequency response	TYPE I (normal) : 70 – 10,000 Hz

General

Speakers	Full range : 10 cm dia., 6 Ω, cone type (2)
Outputs	Headphones jack (stereo minijack) For 16 – 68 Ω impedance headphones
Maximum power output	4.5 W + 4.5 W
Power requirements	For CD radio cassette-corder
	Europe
	230 V AC, 50 Hz
	Other countries
	110 – 120, 220 – 240 V AC selectable, 50/60 Hz or 230 V AC, 50 Hz
	9 V DC, 6 R20 (size D) batteries
Power consumption	AC 25 W

— Continued on next page —

CD RADIO CASSETTE-CORDER

MICROFILM

SONY®

Battery life	For CD radio cassette-corder:
	FM recording
	Sony R20P : approx. 3.5 h
	Sony alkaline LR20 : approx. 10 h
	Tape playback
	Sony R20P : approx. 1.5 h
	Sony alkaline LR20 : approx. 5 h
	CD playback
	Sony R20P : approx. 1 h
	Sony alkaline LR20 : approx. 4 h
Dimensions	Approx. 420 × 165 × 256 mm (w/h/d) (16 5/8 × 6 1/2 × 10 1/8 inches) (incl. projecting parts)
Mass (incl. batteries)	Approx. 4.2 kg (9 lb. 4 oz)
Supplied accessories	AC power cord (1)

Design and specifications are subject to change without notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer: Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

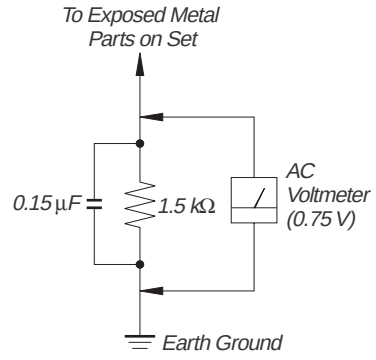

Fig. A. Using an AC voltmeter to check AC leakage.

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Notes on chip component replacement
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing
- Keep the temperature of soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
SERVICE NOTES

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

The following caution label is located inside the unit.

CAUTION	;	INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL	;	USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDS ÆTTELSE FOR STRÅLING.
VARO!	;	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE.
VARNING	;	LASERSTRÅLING NÄR DENNA DEL ÄR OPPNÅD OCH SPÄRREN ÄR URXOPPLAD.
ADVARSEL	;	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

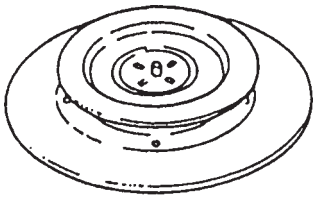
The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc., on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

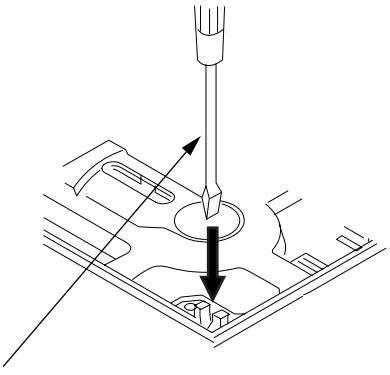
CHUCK PLATE JIG ON REPAIRING

On repairing CD section, playing a disc without the CD lid, use Chuck Plate Jig.
• Code number of Chuck Plate Jig : X-4918-255-1



LASER DIODE AND FOCUS SEARCH OPERATION CHECK

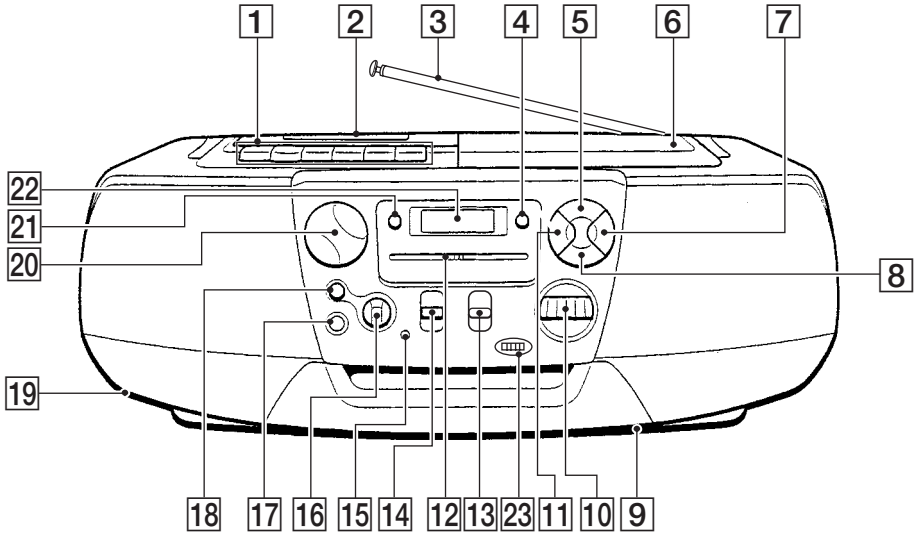
1. Press CD open knob.
2. Open the lid for CD.
3. Push on SWITCH (S801) as following figure.
4. Confirm the laser diode emission while observing the objecting lens. When there is no emission, Auto Power Control circuit or Optical Pick-up is broken.
   Objective lens moves up and down once for the focus search.



Insert a precision screw driver and push SWITCH(S801)

SECTION 2
GENERAL

LOCATION AND FUNCTION OF CONTROLS
MAIN UNIT



1 Tape operation buttons
- ● button
- ▷ button
- ◀◀ button
- ▶▶ button
- ■, ⏏ button
- ❚❚ button

2 CASSETE LID
3 FM rod antenna
4 DISPLAY ENTER button
5 CD ▶❚❚ button
6 CD ⏏ PUSH OPEN/CLOSE button
7 CD ▶▶❙ button
8 CD ■ button
9 Battery compartment
10 TUNE knob
11 CD ❙◀◀ button
12 DIAL
13 BAND switch
14 FUNCTION switch
15 OPR/BATT indicator
16 TONE knob
17 ∩ Phones jack
18 MEGA BASS knob
19 AC IN jack
20 VOLUME knob
21 PLAY MODE button
22 Information display
23 FINE TUNING knob

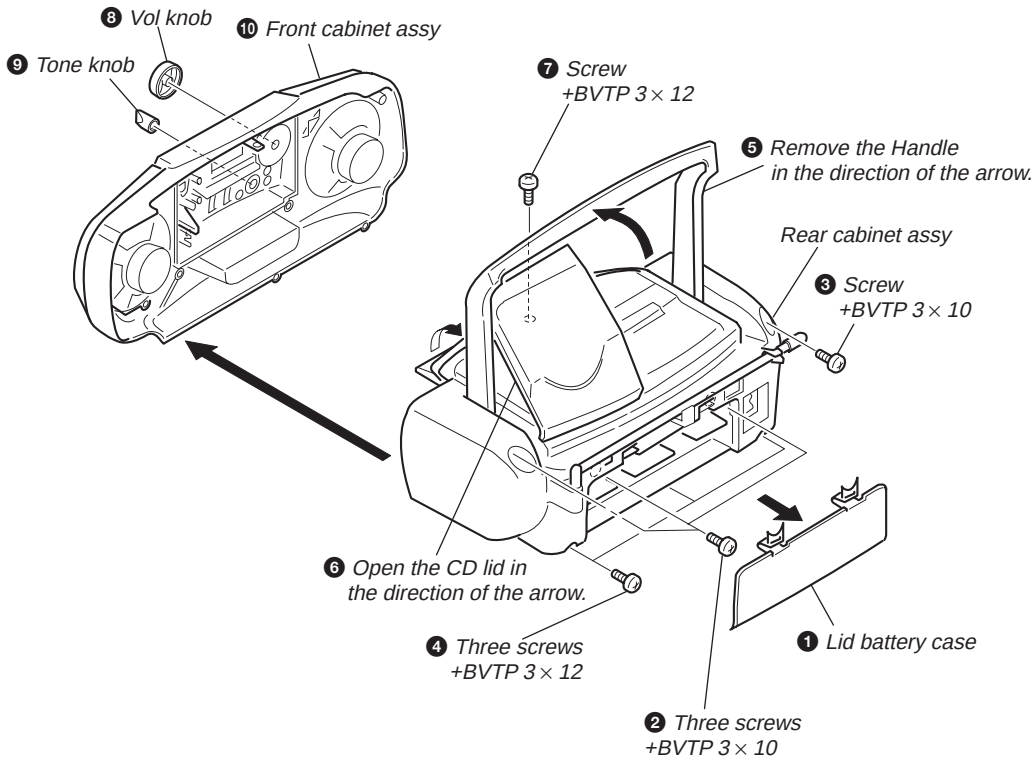
SECTION 3
DISASSEMBLY

• The equipment can be removed using the following procedure.

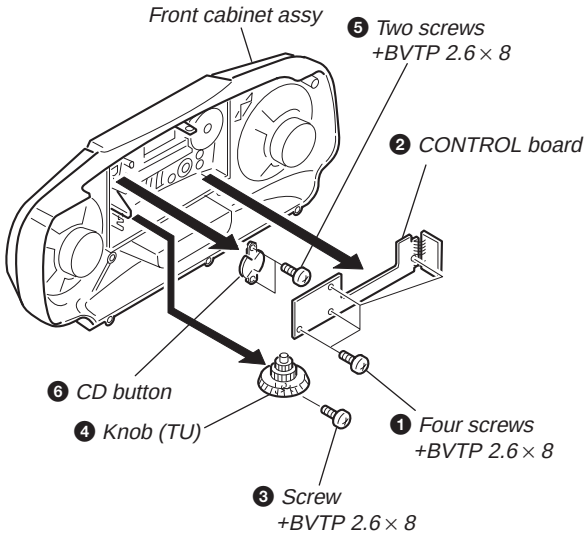
Set ➡ Front cabinet assy ➡ Cabinet (upper) assy ➡ Power, battery, half battery, voltage selection board
Front cabinet assy ➡ Control board
Cabinet (upper) assy ➡ Volume, lcd, mono st, main board ➡ Mechanism deck, optical pick-up section

Note : Follow the disassembly procedure in the numerical order given.

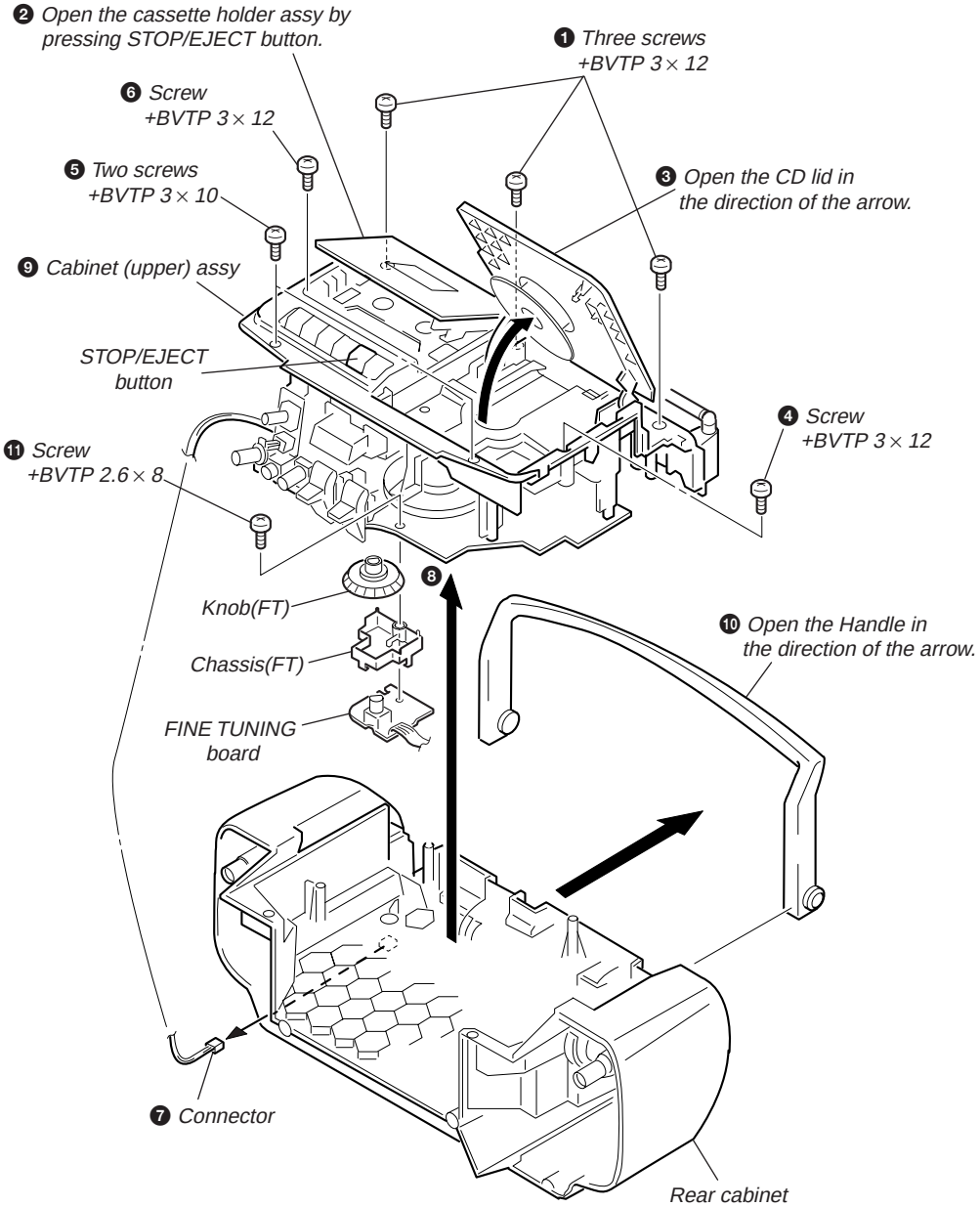
3-1. FRONT CABINET ASSY


❽ Vol knob
❿ Front cabinet assy
❾ Tone knob
❼ Screw +BVTP 3× 12
❺ Remove the Handle in the direction of the arrow.
Rear cabinet assy
❸ Screw +BVTP 3× 10
❻ Open the CD lid in the direction of the arrow.
❹ Three screws +BVTP 3× 12
❶ Lid battery case
❷ Three screws +BVTP 3× 10

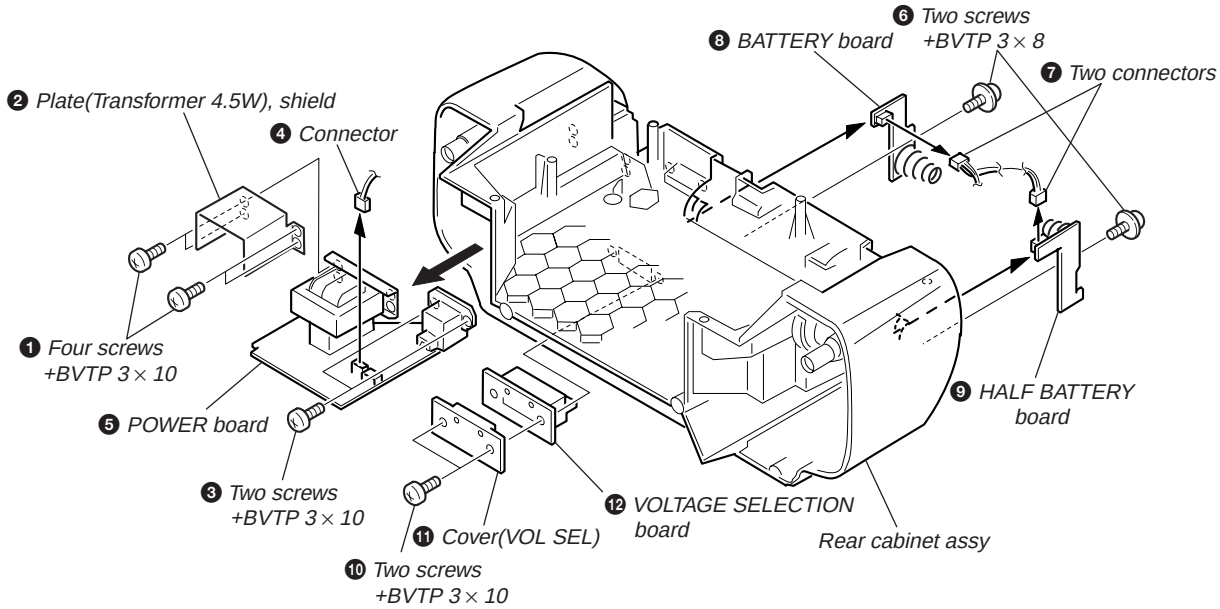
3-2. CONTROL BOARD



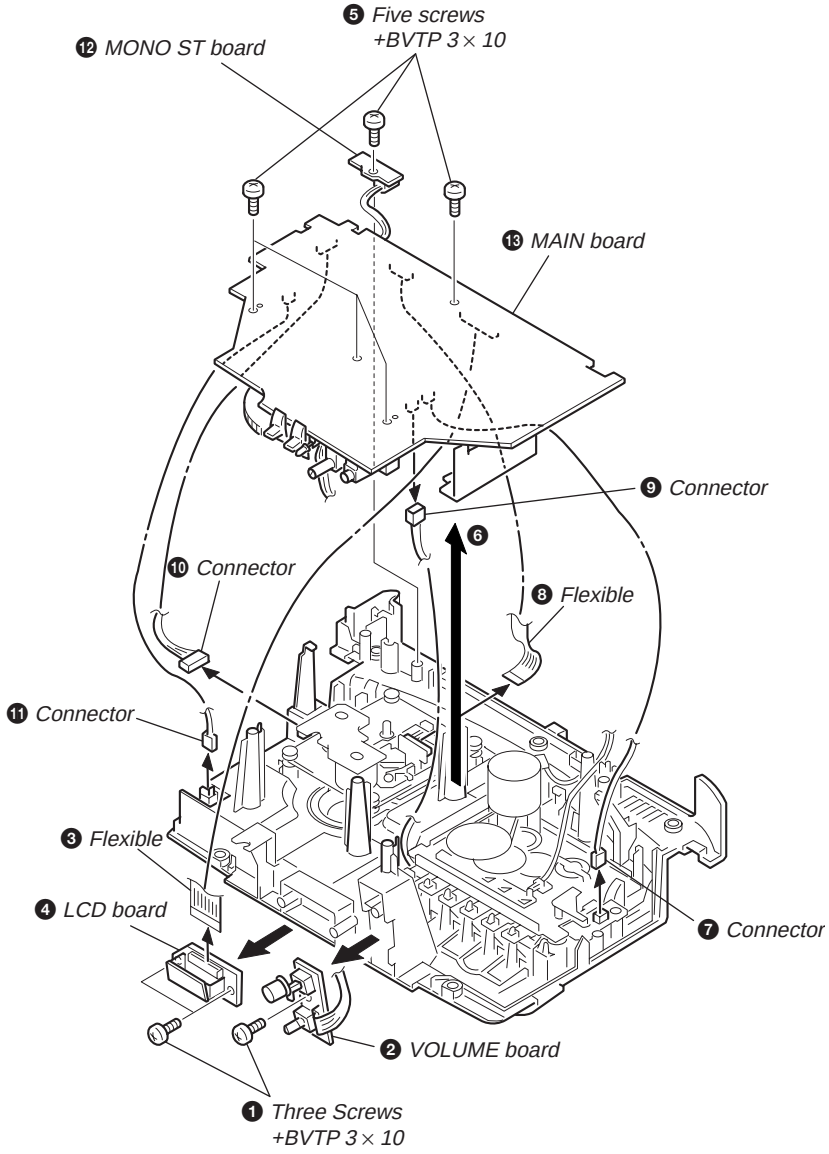
3-3. CABINET (UPPER) ASSY



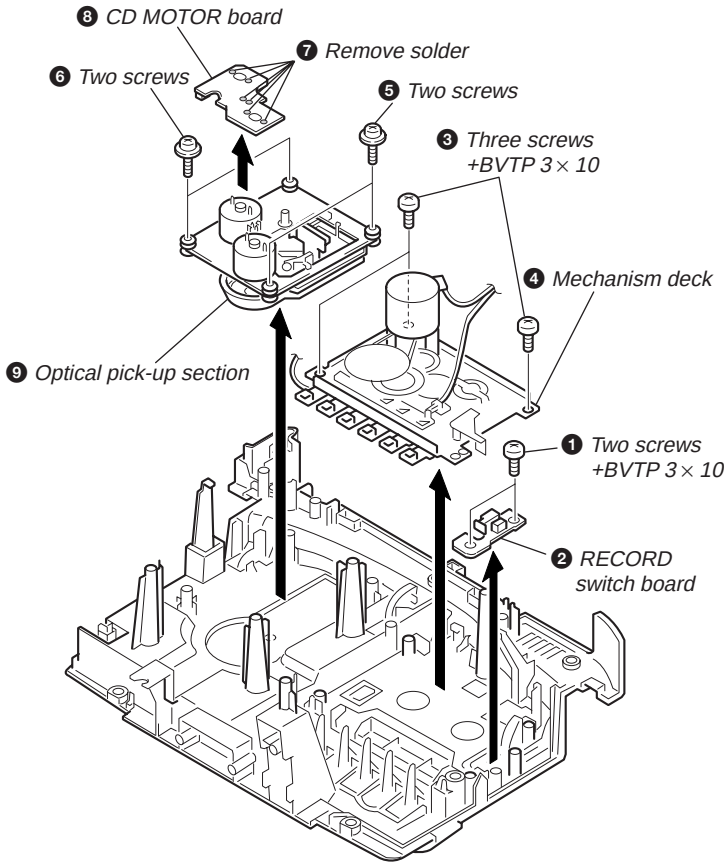
3-4. POWER, BATTERY, HALF BATTERY, VOLTAGE SELECTION BOARD



3-5. VOLUME, LCD, MONO ST, MAIN BOARD



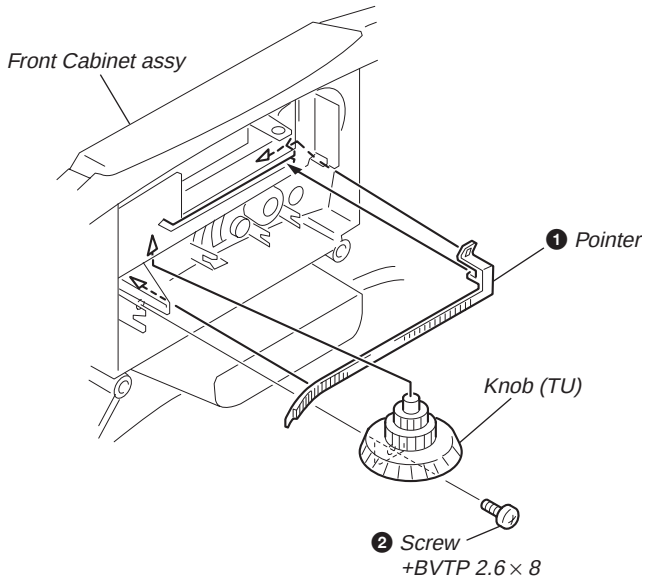
3-6. MECHANISM DECK, OPTICAL PICK-UP SECTION



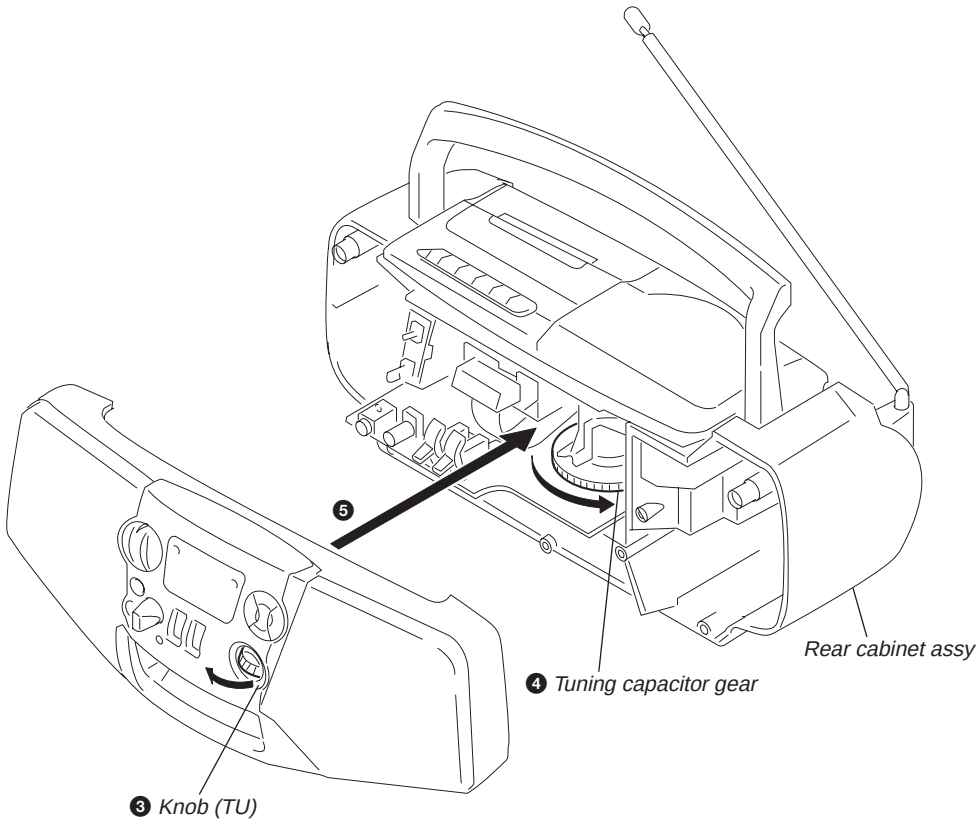
SECTION 4
DIAL POINTER INSTALLATION

Note : Follow the installation procedure in the numerical order given.

❶ Align the pointer with the groove of front cabinet assy and insert it as shown in the illustration.
❷ Align Knob (TU) with front cabinet and fasten the screw.



❸ Turn the Knob (TU) in the direction of the arrow as shown in the illustration until pointer agrees with scale " 0 " (at leftmost end of scale).
❹ Turn the tuning capacitor gear fully in the direction of the arrow as shown in the illustration.
❺ Fasten the front cabinet assy and rear cabinet assy with the screws.



SECTION 5
ADJUSTMENTS

5-1. MECHANICAL ADJUSTMENT

PRECAUTION

1. Clean the following parts with a denatured-alchool-moistened swab:
   record/playback head, pinch roller
   erase head, rubber belts
   capstans
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	18 – 60 g•cm (0.25 – 0.83 oz•inch)
FWD back tension		1.0 – 5.0 g•cm (0.014 – 0.069 oz•inch)
Fast Forward	CQ-201B	45 – 95 g•cm (0.62 – 1.32 oz•inch)
Rewind		45 – 95 g•cm (0.62 – 1.32 oz•inch)

Tape Tension Measurement

Torque Meter	Meter Reading
CQ-403A	more than 60 g (more than 2.12 oz)

5-2. ELECTRICAL ADJUSTMENT

TAPE RECODER SECTION 0dB = 0.775V

Standard output level

Output	HP OUT
Load impedance	32 Ω
Output signal level	0.25 V (–10 dB)

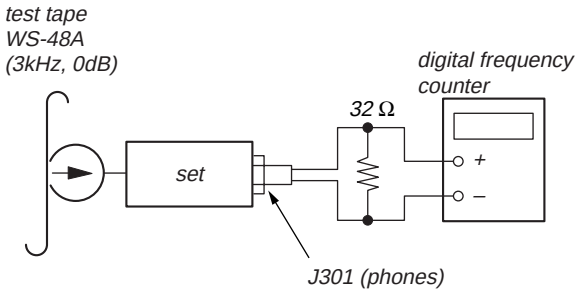
Test tape

Test Tape	Signal	Used for
WS-48A	3 kHz, 0 dB	Tape speed adjustment
P-4-A063	6.3 kHz, –10 dB	Head azimuth adjustment.

Tape Speed Adjustment

Procedure :

Mode : Playback



Adjustment Value : normal tape speed

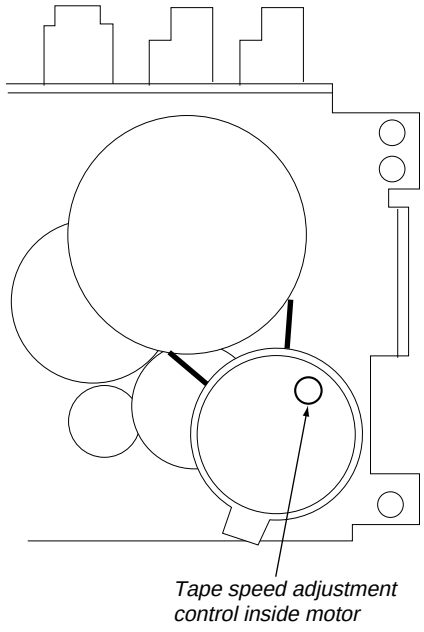
Adjust the tape speed adjustment control inside motor, so that the frequency counter reading becomes 3,000 Hz.

Specification Value :

Digital frequency counter
2,910 – 3,090Hz

Frequency difference between the beginning and the end of the tape should be within 1.5% (45 Hz).

Adjustment Location :



5-3. TUNER SECTION

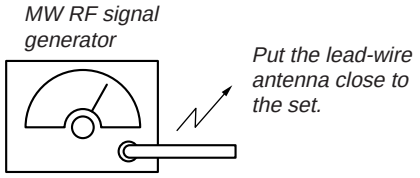
0 dB = 1 µV

• Switch Location

VOLUME : MAX
MEGA BASS : OFF
PRESET SOUND MODE : OFF

MW SECTION

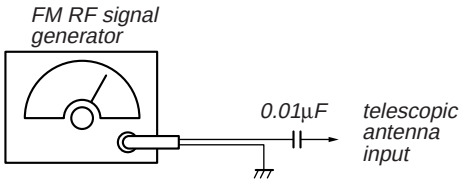
Setting :
FUNCTION switch : RADIO
BAND : MW
Signal generator



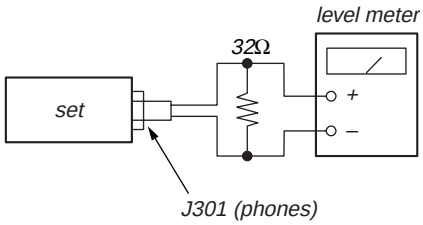
30% amplitude modulation by 400Hz signal.
Output level : as low as possible

FM SECTION

Setting :
FUNCTION switch : RADIO
BAND : FM
Signal generator

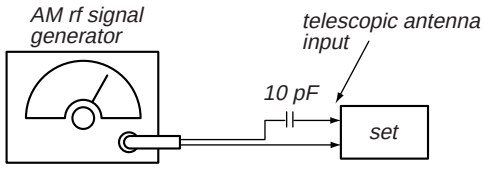


75kHz (100%) amplitude modulation by 1kHz signal.
Output level : as low as possible

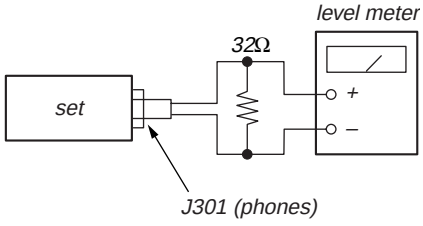


SW SECTION

Setting :
FUNCTION switch : RADIO
BAND : SW1/SW2
FINE TUNING knob : mechanical mid



30% amplitude modulation by 400 Hz
signal output level : as low as possible



• Repeat the procedures in each adjustment several times for the maximum level meter indication.
• The frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

MW IF ADJUSTMENT	
Adjust for a maximum reading on level meter.	
T2	455 kHz

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L3	620 kHz
CT3	1,400 kHz

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L4	520 kHz (516 kHz)<516 kHz>
CT4	1,680 kHz (1,630 kHz)<1,630 kHz>

FM IF ADJUSTMENT	
Adjust for a maximum reading on level meter.	
T1	10.7 MHz

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L1	86.5 MHz(87.35 MHz)[87.0 MHz]<87.35 MHz>
CT1	109.5 MHz(108.25 MHz)[108.3 MHz]<108.25 MHz>

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L2	86.5 MHz (87.35 MHz)[87.0 MHz]<87.35MHz>
CT2	109.5 MHz (107.8 MHz)[108.3 MHz]<108.25 MHz>

SW1 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L6	CT6
2.2 MHz	7.3 MHz

SW1 TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L5	CT5
2.2 MHz	7.3 MHz

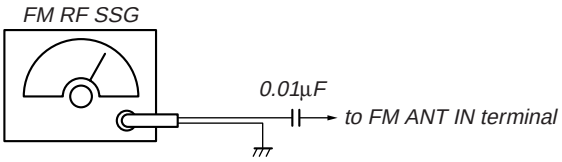
SW2 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L8	CT10
6.8 MHz	22.5 MHz

SW2 TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L7	CT9
6.8 MHz	22.5 MHz

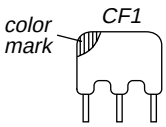
( ) : Saudi Arabia model
[ ] : AEP model
< > : Italian model
Adjustment Location : Main board (See page 13)

FM VCO Adjustment

Procedure :



Carrier frequency : 98MHz
IF frequency : According to the color of CF1.
Modulation : no modulation
Output level : 0.1V (100dB)

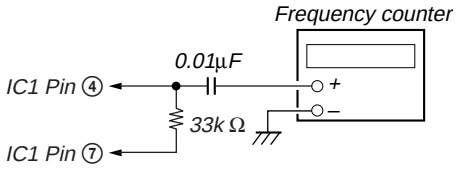


BLACK	10.64MHz
BLUE	10.67MHz
RED	10.70MHz
ORANGE	10.73MHz
WHITE	10.76MHz

1. Connect frequency counter to the positions shown below.
2. Tune the set to 98MHz.
3. Adjust RV1 so that the frequency counter reading becomes 76,000 Hz.

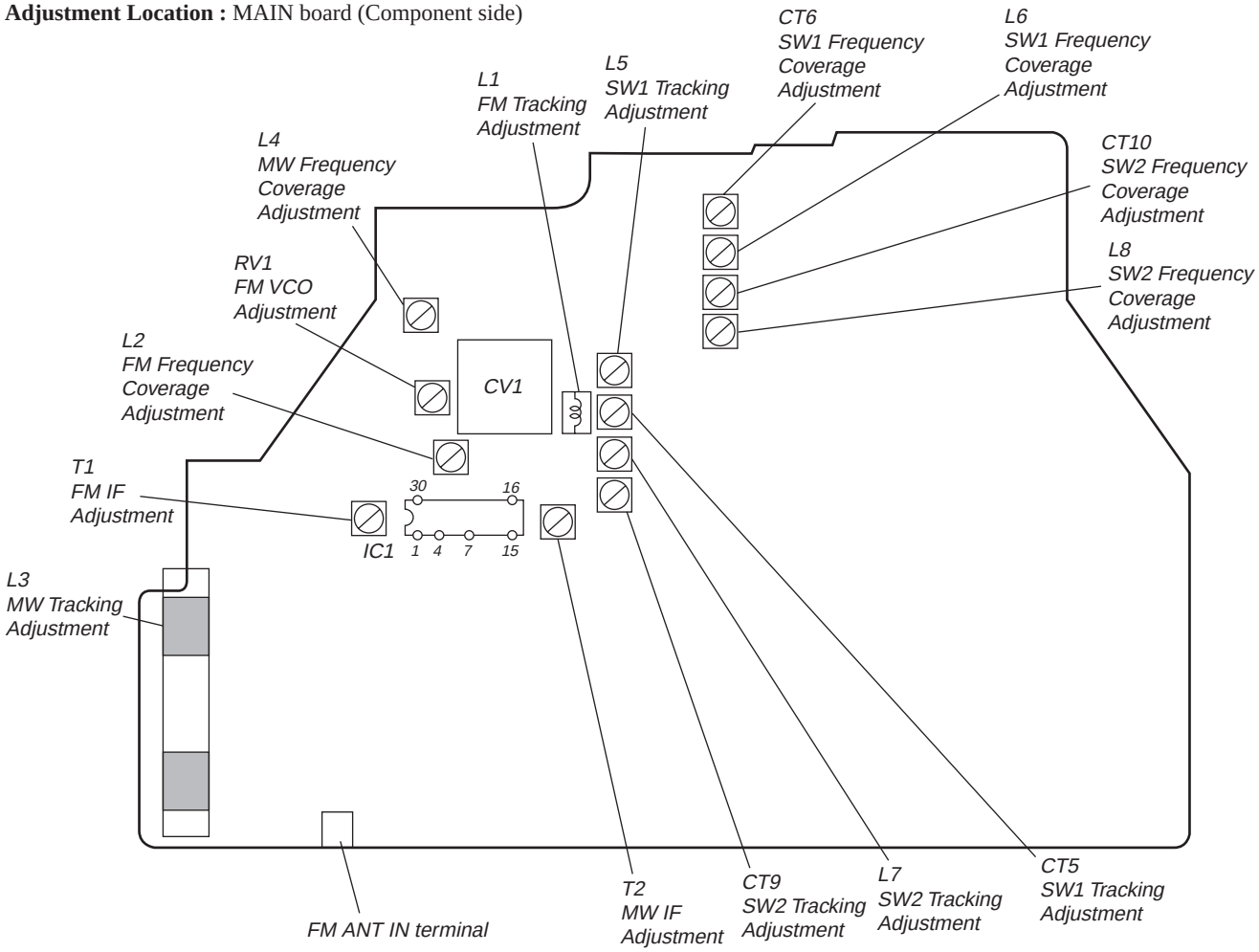
Specification Value :

Frequency counter
75,950 – 76,050 Hz

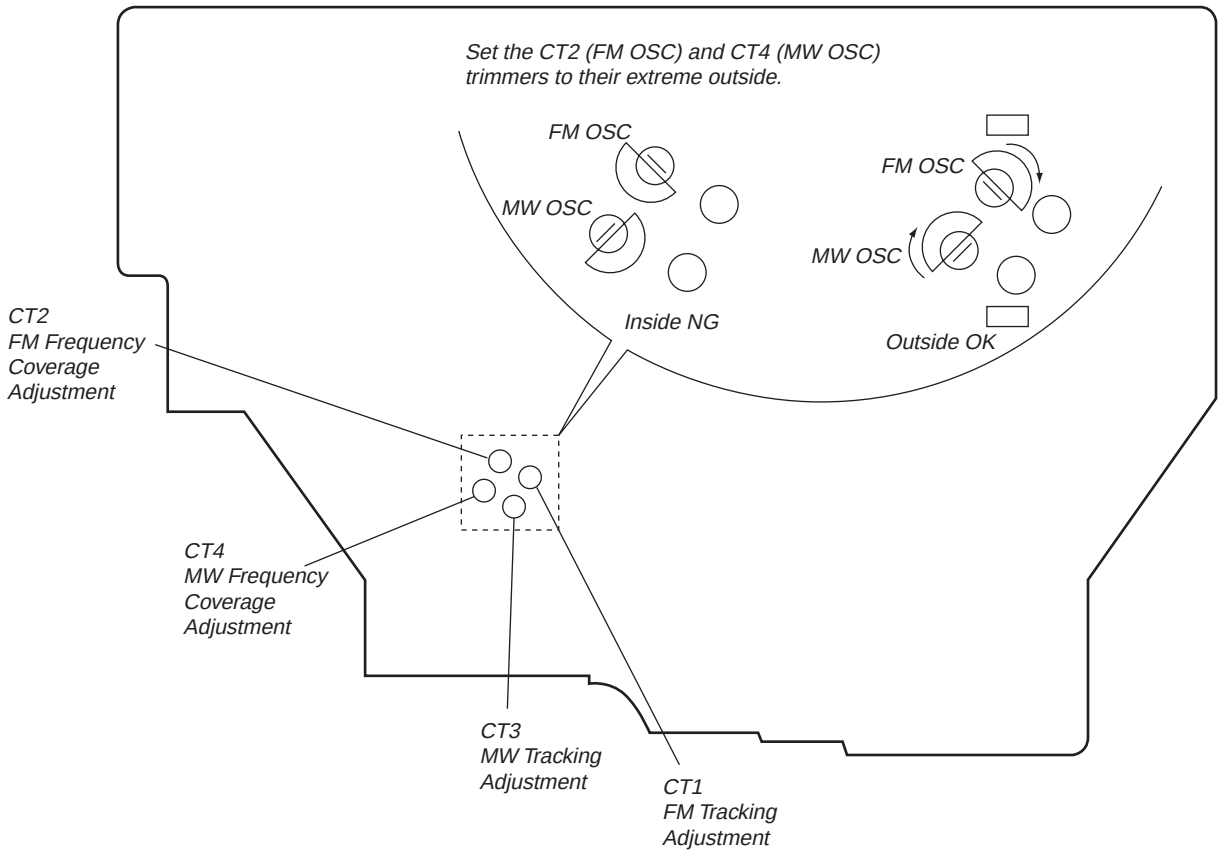


Adjustment Location : MAIN board (See page 13)

Adjustment Location : MAIN board (Component side)



Adjustment Location : MAIN board (Conductor side)



CD SECTION

Notes on Check

1. Perform the traverse check in the CD test mode.
   After check, be sure to exit the test mode.
2. Perform check in the order given.
3. Use the disc (YEDS-18, Parts No. 3-702-101-01) only when so indicated.

Before Check

Put the set into test mode and perform the following checks.
Repair if there are any problems.

• Sled Motor Check

Press ▶▶I , I◀◀ keys and confirm that the Optical pick-up moves smoothly from the innermost to outermost circumference and back smoothly and with no catching or abnormal noises.
(Cancellation of BTL mute)
▶▶I : Optical pick-up moves to the outer circumference.
I◀◀ : Optical pick-up moves to the inner circumference.

• Focus Search Check

1. Press the CD ▶II key. (Focus search operation is performed continuously.)
2. Look at the Optical pick-up objective lens and confirm that it moves up and down smoothly, with no catching or abnormal noises.
3. Press ■ button.
   Confirm that focus search operation stops. If it does not, press ■ button again longer.

How to Enter the Set into Test Mode

1. Set the function switch to power off.
2. Set the function switch to CD while I◀◀ key and ■ key pressing.
   The set is into CD test mode (88 is displayed).
3. Turn the power off to release test mode.

How to Exit the Test Mode

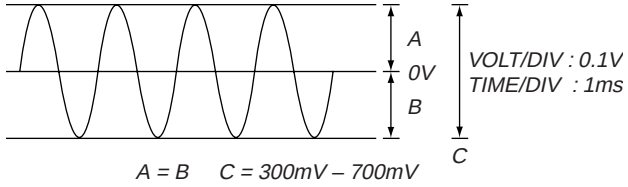
Turn the POWER OFF.

TRAVERSE Check

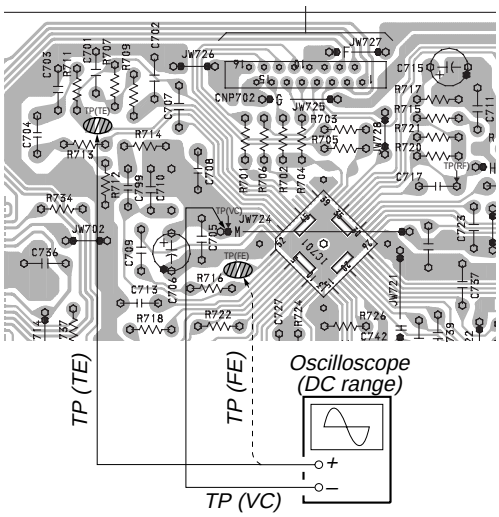
This check is to be done when the optical pick-up block is replaced.

Check Procedure:

1. Connect the oscilloscope to test point TP (VC) and TP (TE) on MAIN board.
2. Put the set into test mode.
3. Optical pick-up setting to the center by ▶▶I or I◀◀ button pushing.
4. Insert disk (YEDS-18) and press ▶II button.
5. Check that the oscilloscope traverse waveform is symmetrical, as shown in the figure below.
6. Release test mode after adjustment is completed.



[MAIN BOARD] (Conductor side)



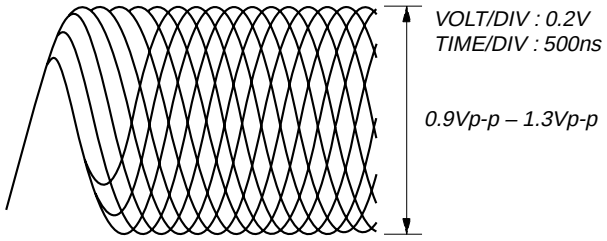
Focus Bias Check

This check is to be done when the optical block replaced.

Check Procedure:

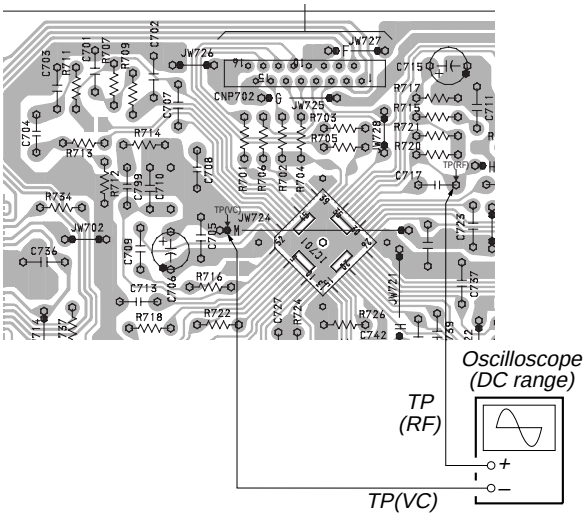
1. Connect the oscilloscope to test point TP (VC) and TP (RF) on MAIN board.
2. Put the set into test mode.
3. Opitical pick-up setting to the center by + or – button pushing.
4. Insert disk (YEDS-18) and press ▶II button.
5. Press the MODE button. (Tracking servo ON)
6. Check that the oscilloscope wavewform is as shown in the figure below (eye pattern).
   A good eye pattern means that the diamond shape (◊) in the center of the waveform can be clearly distinguished.
7. Release test mode after adjustment is completed.

• RF signal reference waveform (eye pattern)



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensivity.

[MAIN BOARD] (Conductor side)



5-4. REFERENCE

Focus/Tracking Gain Check

Adjustment Location : MAIN board (Component side)

(See page 16)

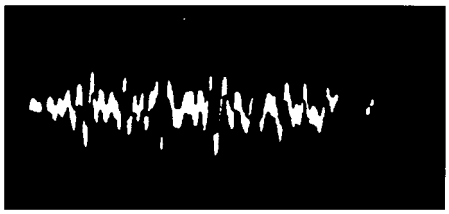
A frequency response analyzer is necessary in order to perform this check exactly.
However, this gain has a margin, so even if it is slightly off, there is no problem.
Focus/Tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

Symptoms \ Gain	Focus	Tracking
• The time until music starts becomes longer for STOP ➡ CD ▶II or automatic selection (◀◀ , ▶▶ buttons pressed). (Normally takes about 2 seconds.)	low	low or high
• Music does not start and disc continues to rotate for STOP ➡ CD ▶II or automatic selection (◀◀ , ▶▶ buttons pressed.)	—	low
• Sound is interrupted during PLAY. Or time counter display stops progressing.	—	low
• More noise during 2-axis device operation.	high	high

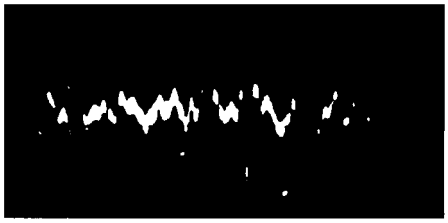
Check Procedure:

1. Keep the set horizontal.
2. Inset disk (YEDS-18) and press ▶II button.
3. Connect an oscilloscope to TP (FE) and TP (VC) on the MAIN board.
4. Check that the waveform is as shown in the figure below. (Focus waveform)

• Good Example



• Incorrent Examples (DC level changes more than on adjusted waveform)

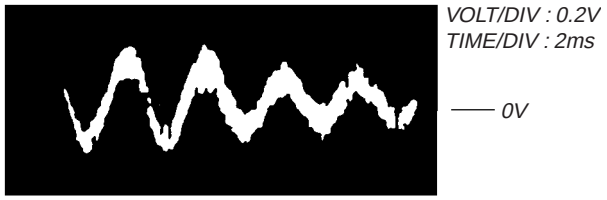


low focus gain

high focus gain

5. Connect an oscilloscope between TP (TE) and TP (VC).
6. Insert disc (YEDS-18) and press the CD ▶II button.
7. Check that the waveform is as shown in the figure below. (tracking waveform)

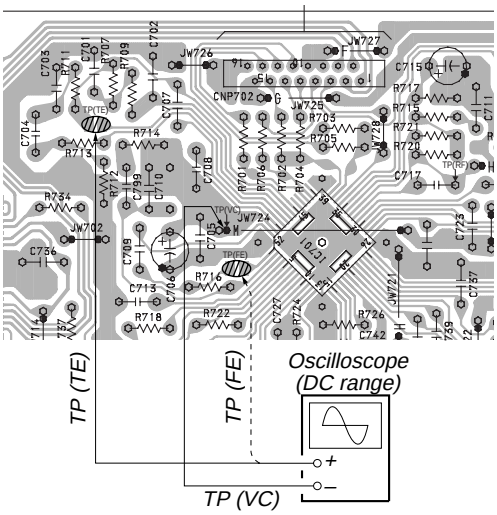
• Incorrect Examples (Fundamental wave appears)



low tracking gain

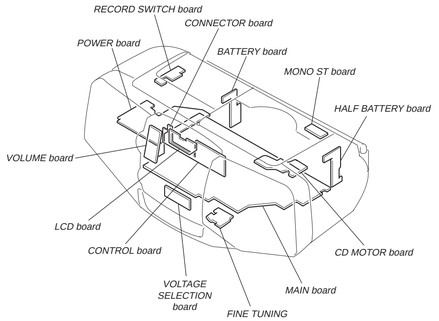
high tracking gain
(high fundamental wave than for low gain)

[MAIN BOARD] (Conductor side)

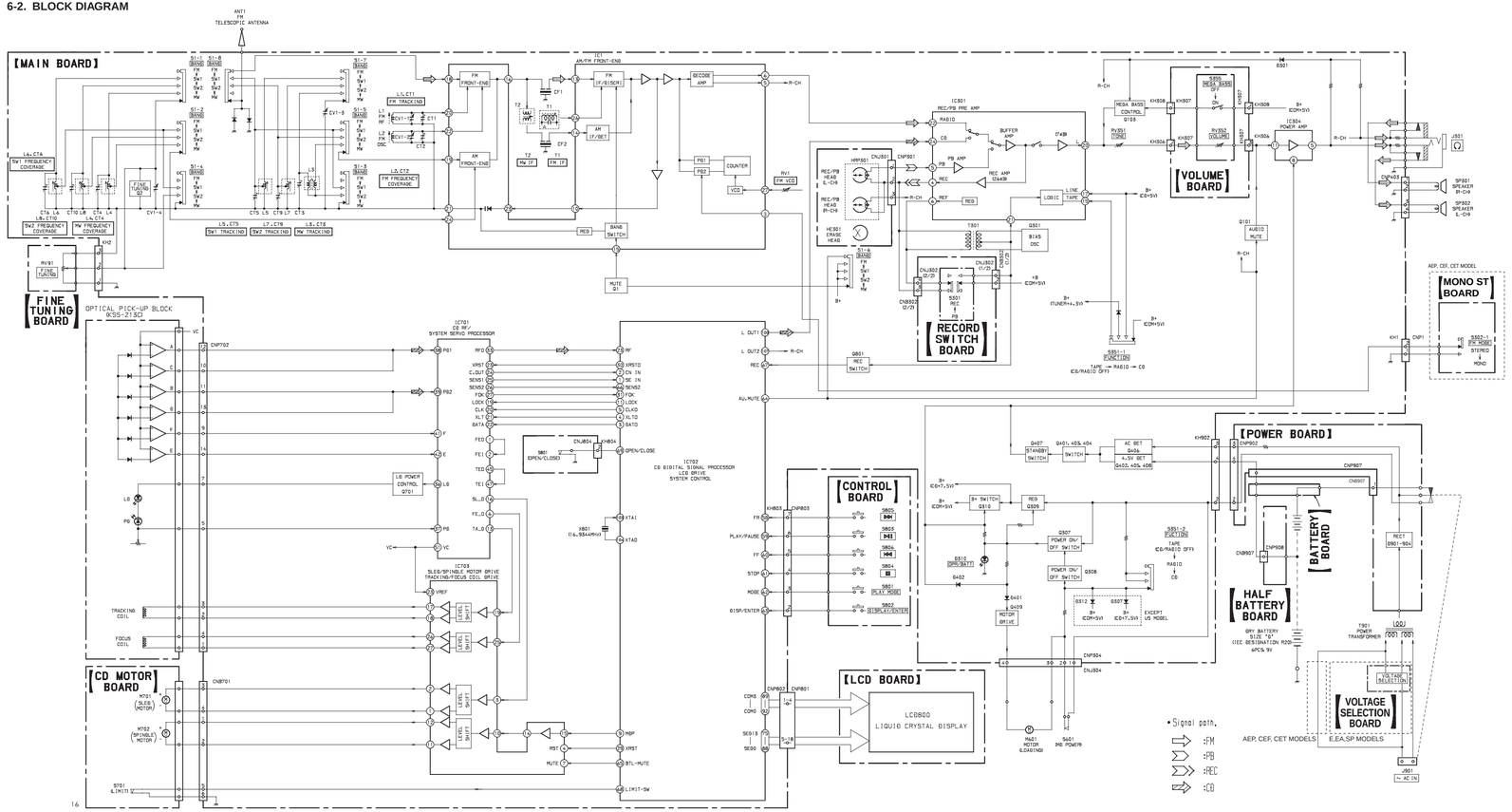


SECTION 6
DIAGRAMS

6-1. CIRCUIT BOARDS LOCATION



6-2. BLOCK DIAGRAM



Note on Printed Wiring Board:
- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ▨ : Pattern from the side which enables seeing.

Note on Schematic Diagrams:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.
- : panel designation.
- : adjustment for repair.
- B+ : B+ Line.
- Power voltage is dc 9 V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

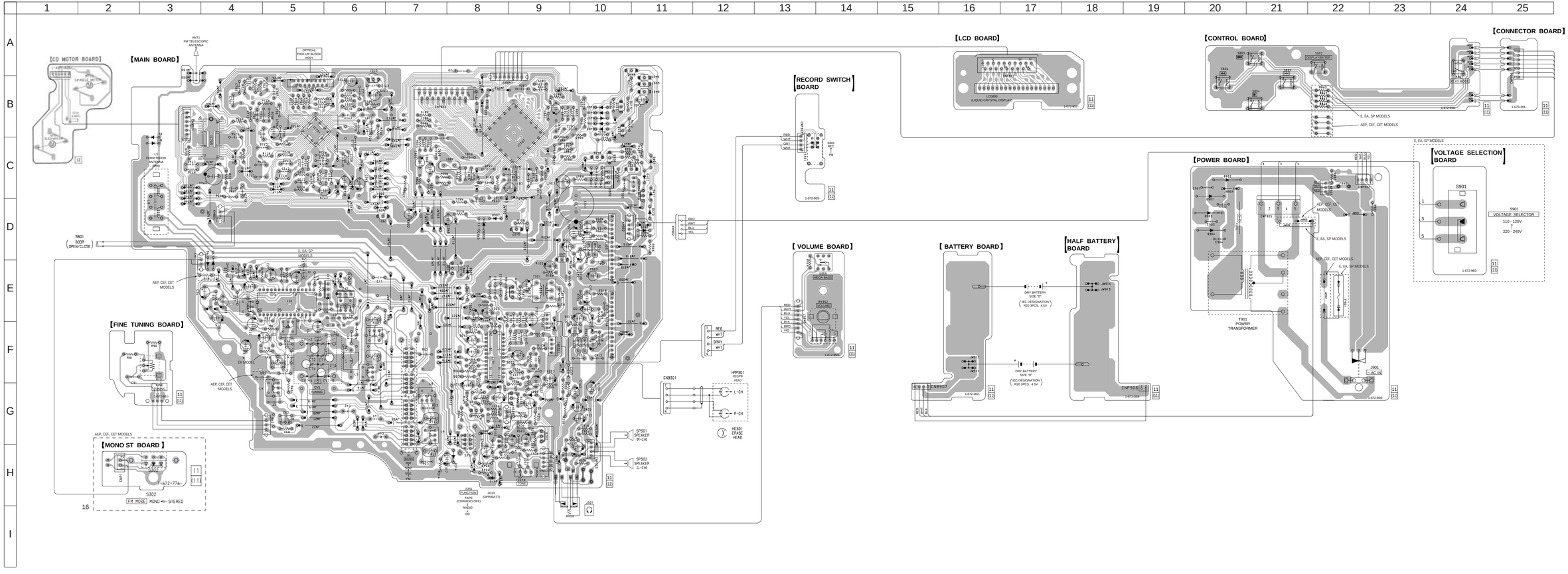
– For MAIN BOARD (1/3) –
no mark : PLAY (TAPE SECTION)
CD STOP
( ) : REC (TAPE SECTION)
– For MAIN BOARD (2/3) –
no mark : CD PLAY
TAPE STOP
– For MAIN BOARD (3/3) –
no mark : FM
( ) : MW
[ ] : SW
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
: FM
: PB
: REC
: CD
- Abbreviation
EA : Saudi Arabia model
SP : Singapore model
CEF : Italian model
CET : East European and Russian models

6-3. PRINTED WIRING BOARD

• Refer to page 20 for Note on Printed Wiring Board. • Refer to page 17 for Circuit Boards Location.

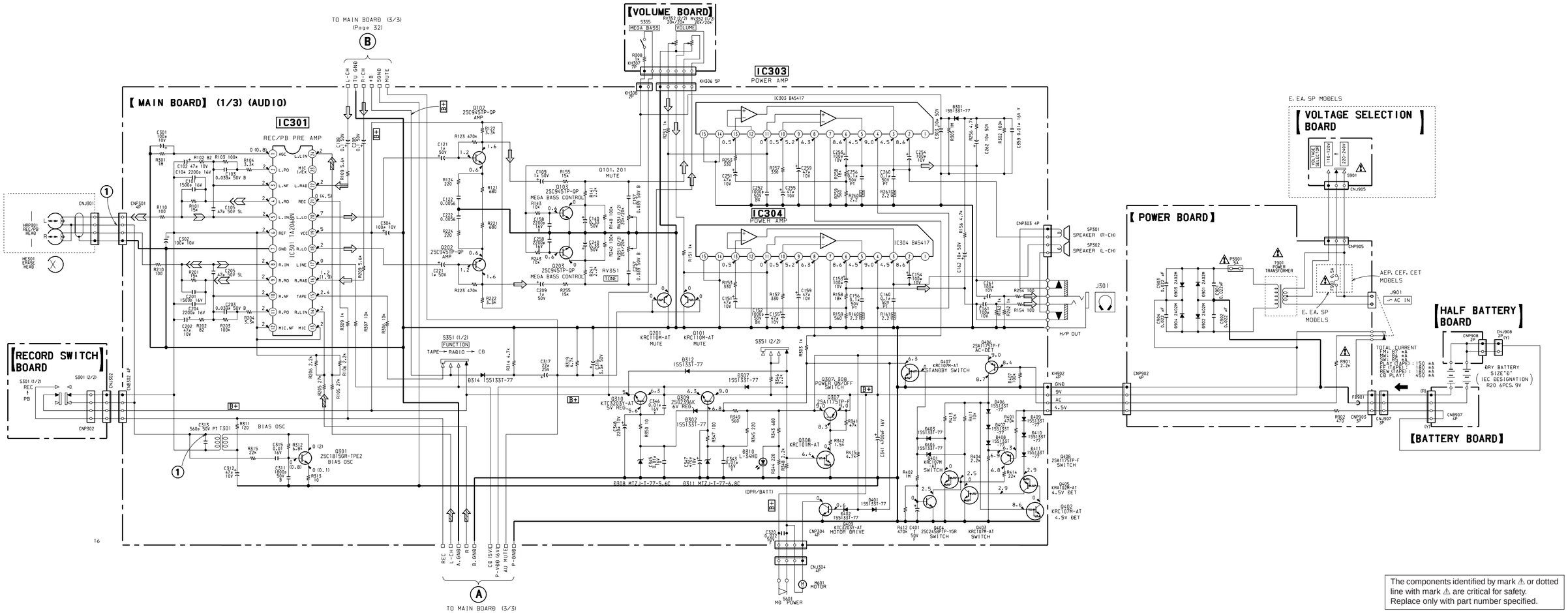
• **Semiconductor Location**

Ref. No.	Location
D1	C-3
D2	C-3
D3	E-4
D4	E-4
D301	G-9
D302	D-9
D307	E-8
D308	D-8
D310	H-9
D311	C-10
D312	G-8
D314	H-8
D401	C-11
D402	C-11
D403	B-10
D404	B-10
D406	B-10
D407	B-10
D408	B-10
D409	D-11
D410	D-11
D411	D-11
D801	D-7
D901	D-20
D902	C-20
D903	D-20
D904	D-20
IC1	E-5
IC301	F-9
IC303	D-10
IC304	F-10
IC701	B-5
IC702	C-9
IC703	C-4
Q1	E-6
Q2	G-5
Q101	F-10
Q102	G-8
Q103	H-8
Q201	E-9
Q202	G-8
Q203	G-9
Q301	E-9
Q307	C-11
Q308	C-10
Q309	C-10
Q310	E-8
Q401	B-11
Q402	B-11
Q403	B-10
Q404	B-10
Q405	B-11
Q406	C-10
Q407	D-9
Q408	A-10
Q409	D-11
Q701	B-6
Q801	D-6



6-4. SCHEMATIC DIAGRAM – MAIN BOARD (1/3) –

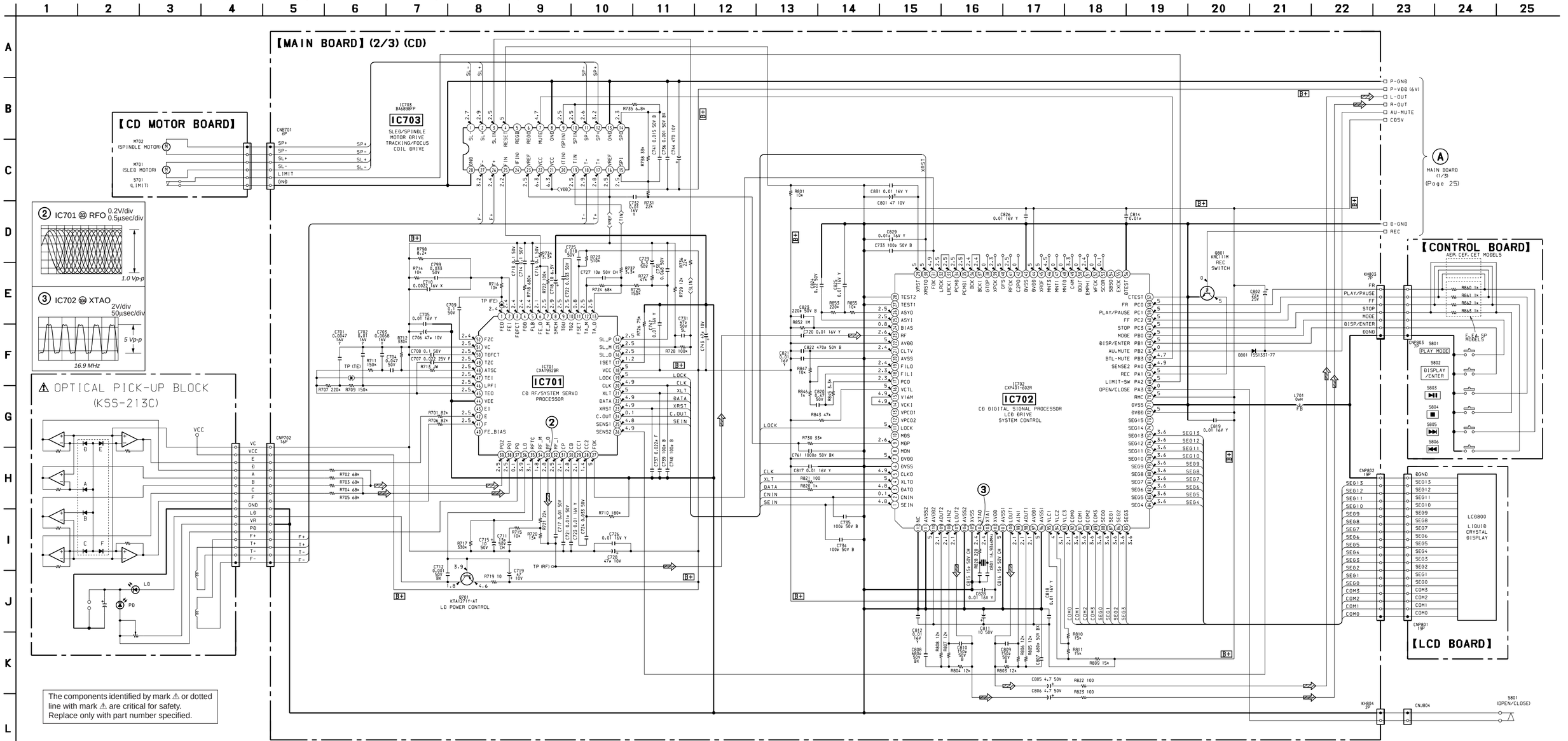
• Refer to page 20 for Note on Schematic Diagram. • Refer to page 35 for IC Block Diagrams.



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

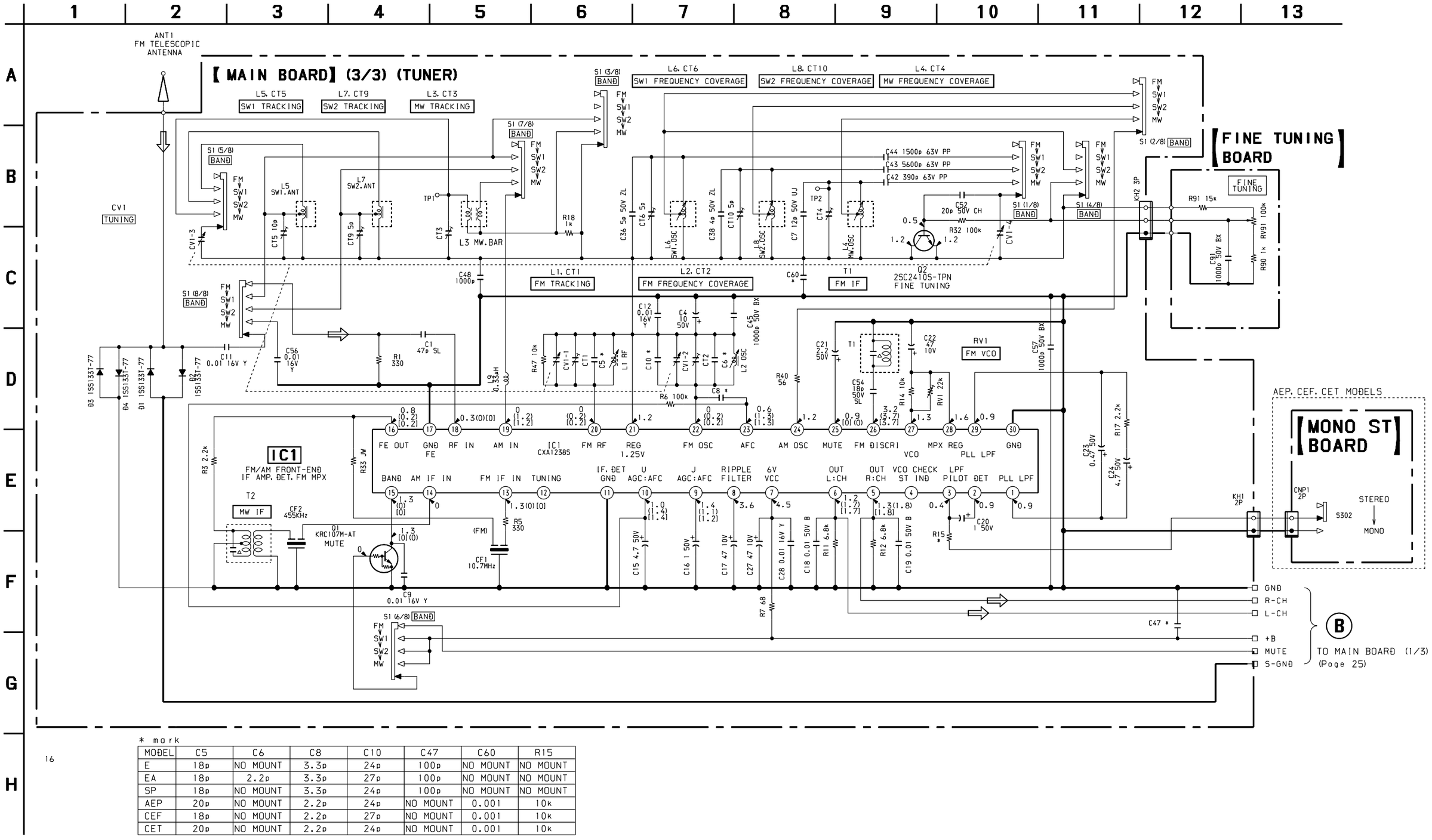
6-5. SCHEMATIC DIAGRAM – MAIN BOARD (2/3) –

• Refer to page 20 for Note on Schematic Diagram. • Refer to page 35 for IC Block Diagrams.



6-6. SCHEMATIC DIAGRAM – MAIN BOARD (3/3) –

• Refer to page 20 for Note on Schematic Diagram.
• Refer to page 35 for IC Block Diagrams.



* mark

MODEL	C5	C6	C8	C10	C47	C60	R15
E	18p	NO MOUNT	3.3p	24p	100p	NO MOUNT	NO MOUNT
EA	18p	2.2p	3.3p	27p	100p	NO MOUNT	NO MOUNT
SP	18p	NO MOUNT	3.3p	24p	100p	NO MOUNT	NO MOUNT
AEP	20p	NO MOUNT	2.2p	24p	NO MOUNT	0.001	10k
CEF	18p	NO MOUNT	2.2p	27p	NO MOUNT	0.001	10k
CET	20p	NO MOUNT	2.2p	24p	NO MOUNT	0.001	10k

6-7. IC PIN FUNCTION DESCRIPTION

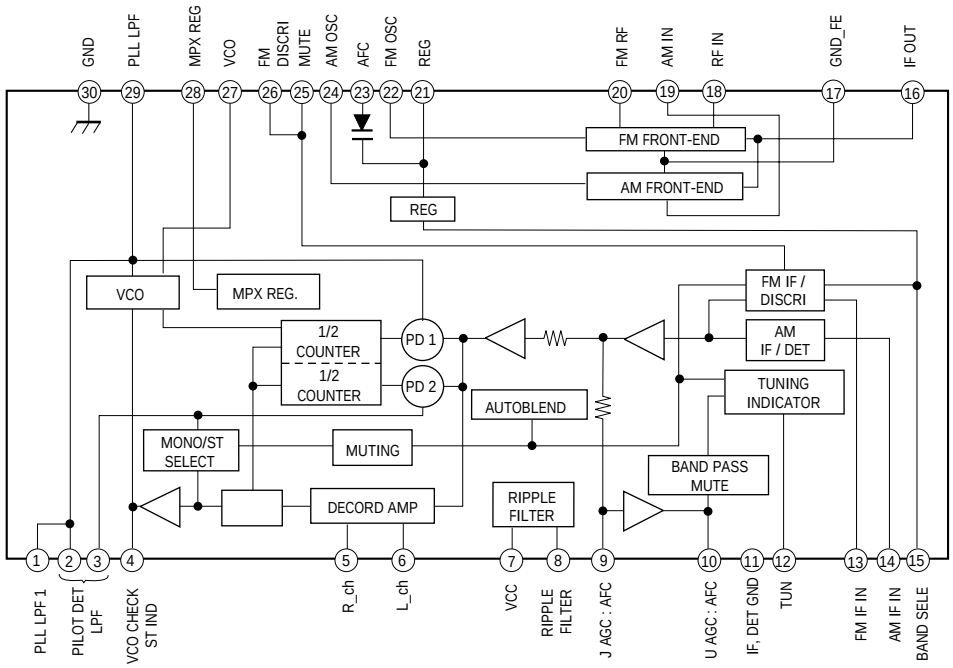
IC702 CD DIGITAL SIGNAL PROCESSOR, LED DRIVE, SYSTEM CONTROL (CXP401-602R)

Pin No.	Pin name	I/O	Description
1	SEIN	I	CD SENS input.
2	CNIN	I	CD SENS input.
3	DATO	O	CD DSP command data output.
4	XLTO	O	Latch output.
5	CLKO	O	Clock output for CD DSP command.
6	DV_{SS}	–	Digital ground.
7	DV_{DD}	–	Digital power supply (+5V).
8	MON	–	Not used (Open).
9	MDP	O	Spindle motor drive control.
10	MDS	–	Not used (Open).
11	LOCK	O	Lock signal output.
12	VPCO2	–	Not used (Open).
13	VPCO1	–	Not used (Open).
14	VCKI	–	Not used (Connect to ⑮ pin).
15	V16M	–	Not used (Connect to ⑭ pin).
16	VCTL	–	Not used (“H” level).
17	PCO	O	Decoder PLL phase comparator output.
18	FILI	I	Decoder PLL filter input.
19	FILO	O	Decoder PLL filter output.
20	AV_{SS}	–	Analog ground.
21	CLTV	I	Decoder PLL VCO control voltage input.
22	AV_{DD}	–	Analog power supply (+5V).
23	RF	I	CD RF signal input.
24	BIAS	I	Playback EFM asymmetry current constant input.
25	ASYI	I	Playback EFM asymmerty comparater voltage input.
26	ASYO	O	Playback EFM full swing output.
27	TEST1	I	Test terminal (Fixed at “L”).
28	TEST2	I	Test terminal (Fixed at “L”).
29	XRST	I	CD reset input.
30	XRSTO	O	CD reset output. “L” : Reset
31	FOK	I	FOK signal input.
32	LRCK	O	L/R clock signal output. (Connect to ㉝ pin)
33	LRCKI	I	L/R clock signal input. (Connect to ㉜ pin)
34	PCMD	O	PCM data output. (Connect to ㉟ pin)
35	PCMDI	I	PCM data input. (Connect to ㉞ pin)
36	BCK	O	Bit clock signal output. (Connect to ㊲ pin)
37	BCKI	I	Bit clock signal input. (Connect to ㊱ pin)
38	GTOP	–	Not used (Open).
39	XPCK	–	Not used (Open).
40	GFS	–	Not used (Open).
41	RFCK	–	Not used (Open).
42	C2PO	–	Not used (Open).
43	DV_{SS}	–	Digital ground.
44	DV_{DD}	–	Digital power supply (+5V).
45	XROF	–	Not used (Open).

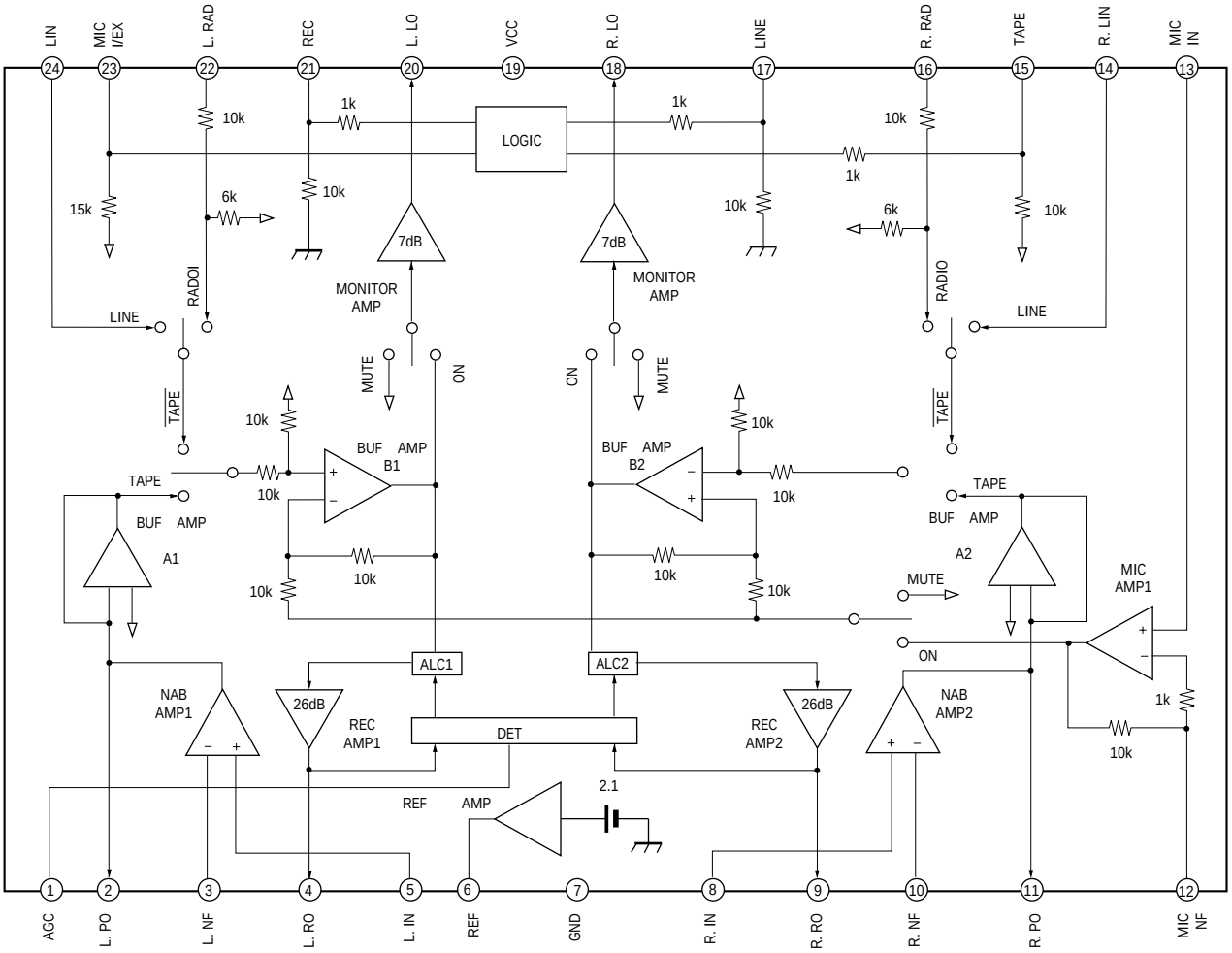
Pin No.	Pin name	I/O	Description
46	MNT3	–	Not used (Open).
47	MNT1	–	Not used (Open).
48	MNT0	–	Not used (Open).
49	C4M	–	Not used (Open).
50	DOUT	–	Not used (Open).
51	EMPHI	–	Not used (Open).
52	WFCK	–	Not used (Open).
53	SCOR	–	Not used (Open).
54	SBSO	–	Not used (Open).
55	EXCK	–	Not used (Open).
56	DTEST	I	Test terminal (Fixed at “L”).
57	CTEST	I	Test terminal (Fixed at “L”).
58	FR	I	⏮ key input.
59	PLAY/PAUSE	I	⏯ key input.
60	FF	I	⏭ key input.
61	STOP	I	■ key input.
62	MODE	I	PLAY MODE key input.
63	DISP/ENTER	I	DISPLAY/ENTER key input.
64	AU MUTE	O	Audio mute signal output.
65	BTL MUTE	O	BTL mute signal output.
66	SENCE2	I	CD SENCE input.
67	REC	I	Function REC input.
68	LIMIT SW	I	LIMIT switch input.
69	OPEN/CLOSE	I	CD door open/close switch input.
70	RMC	–	Not used (Fixed at “H”).
71	DV_{SS}	–	Digital ground.
72	DV_{DD}	–	Digital power supply (+5V).
73	SEG 15	–	Not used (Open).
74	SEG 14	–	Not used (Open).
75 – 88	SEG 0 – 13	O	LCD segment output.
89 – 92	COM 0 – 3	O	LCD common output.
93 – 95	VCL 1 – 3	I	LCD drive device voltage input.
96	$AV_{SS}1$	–	Analog ground.
97	$AV_{DD}1$	–	Analog power supply (+5V).
98	AOUT1	O	Audio output.
99	AIN1	I	Audio input.
100	LOUT1	O	L-CH audio output.
101	$AV_{SS}1$	–	Analog ground.
102	XV_{DD}	–	Oscillator power supply (+5V).
103	XTAI	I	Oscillator connect terminal (16.9344MHz).
104	XTAO	O	Oscillator connect terminal (16.9344MHz).
105	XV_{SS}	–	Oscillator ground.
106	$AV_{SS}2$	–	Analog ground.
107	LOUT2	O	R-CH audio output.
108	AIN2	I	Audio input.
109	AOUT2	O	Audio output.
110	$AV_{DD}2$	–	Digital power supply (+5V).
111	$AV_{SS}2$	–	Ground terminal.
112	NC	–	Not used (Connect to ground).

• IC BLOCK DIAGRAMS

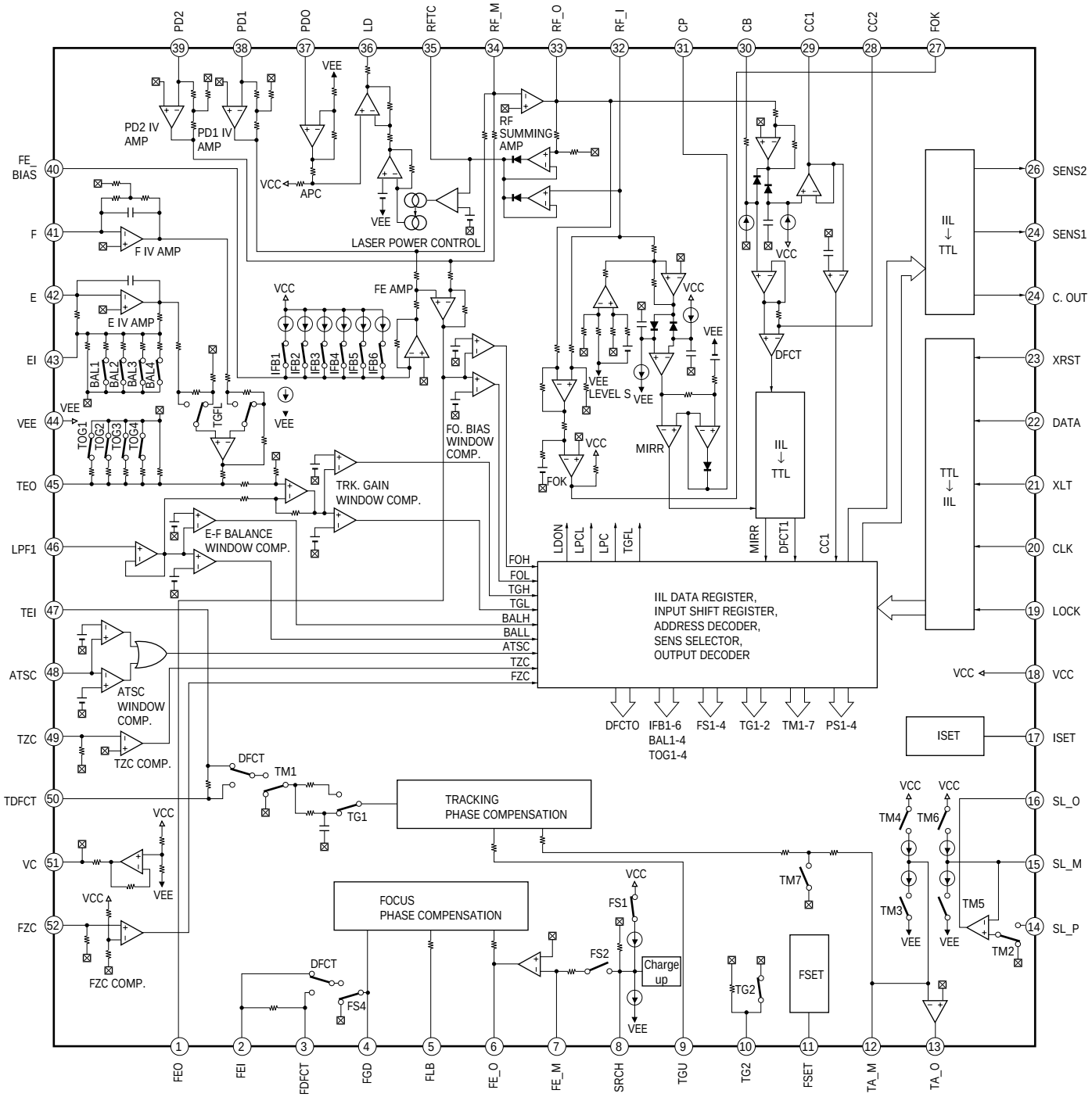
IC1 CXA1538S



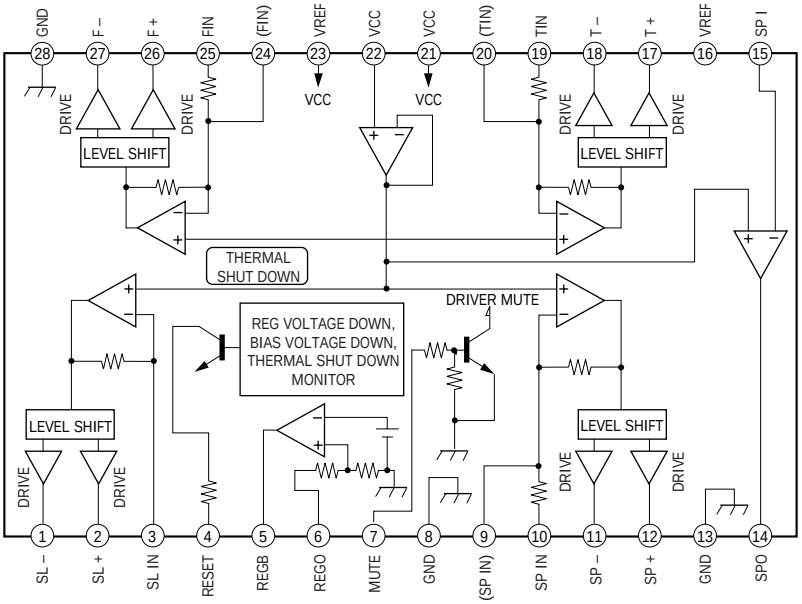
IC301 TA2068N



IC701 CXA1992BR



IC703 BA6898FP



SECTION 7
EXPLODED VIEWS

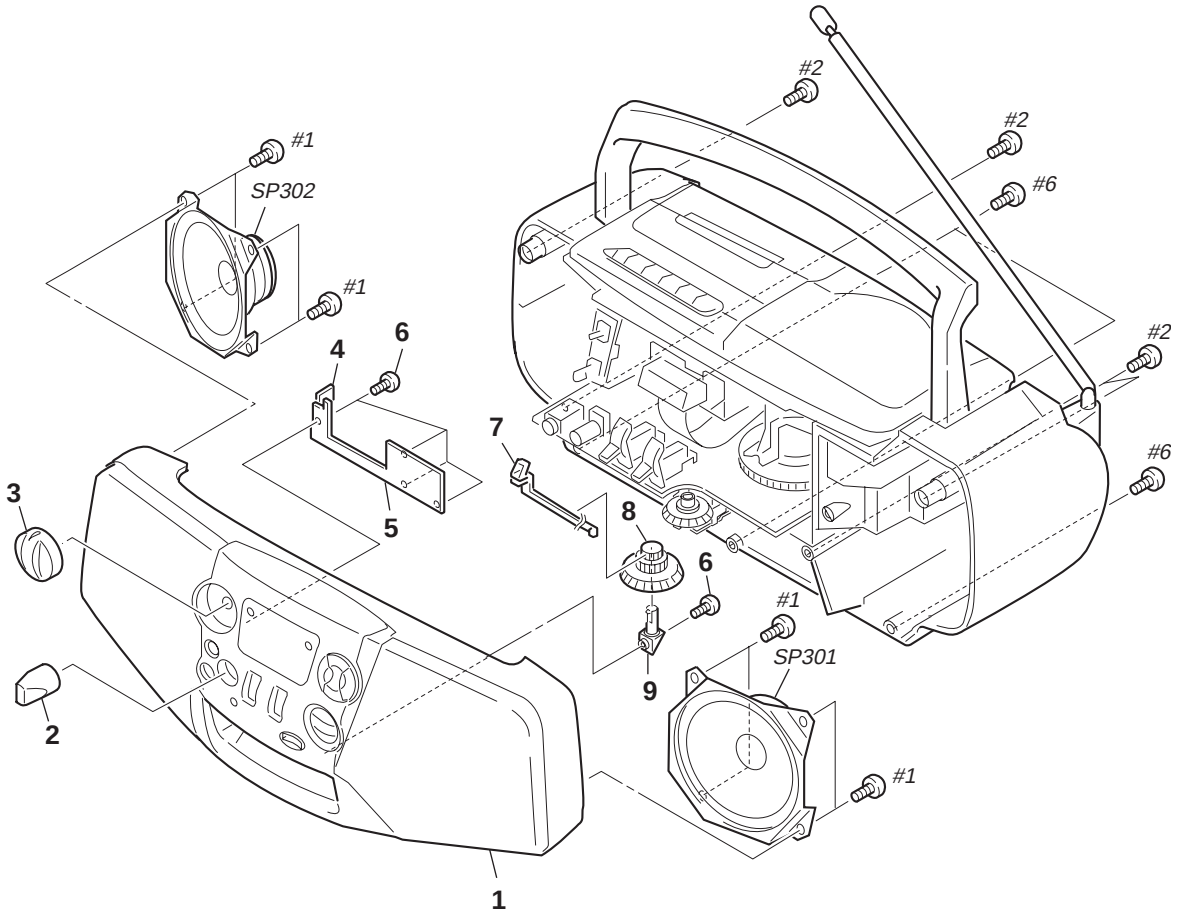
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
  EA : Saudi Arabia model
  SP : Singapore model
  CEF : Italian model
  CET : East European and Russian model
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts of Color Cabinet's Color
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

When indicating parts by reference number, please include the board name.

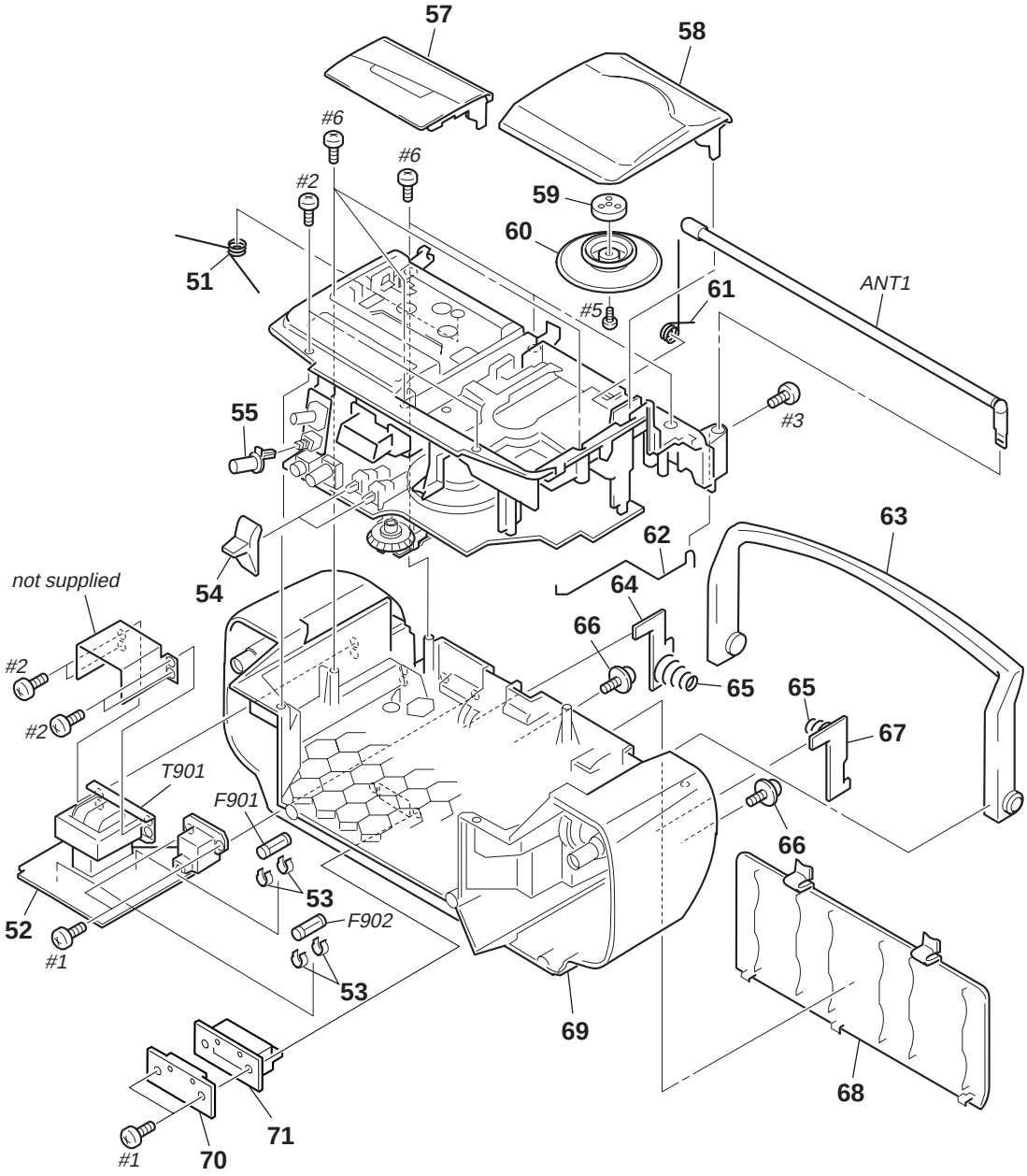
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

7-1. FRONT CABINET SECTION



Ref. No.	Part No.	Description	Remarks
1	X-3377-295-1	CABINET (FRONT) SUB ASSY (EA,AEP,CEF,CET)	
1	X-3377-422-1	CABINET (FRONT) SUB ASSY (E, SP)	
2	3-018-837-41	KNOB(VOL)(TONE)	
3	3-031-549-21	KNOB(VOL)(VOLUME)	
* 4	1-673-261-11	CONNECTOR BOARD	
* 5	1-672-958-11	CONTROL BOARD	
6	4-951-620-01	SCREW(2.6 × 8), +BVTP	
7	3-031-551-01	POINTER	
8	3-031-552-11	KNOB(TU)	
9	3-031-558-01	SHAFT(TU)	
SP301	1-529-341-11	SPEAKER (10cm) (R)	
SP302	1-529-341-11	SPEAKER (10cm) (L)	

7-2. REAR CABINET SECTION

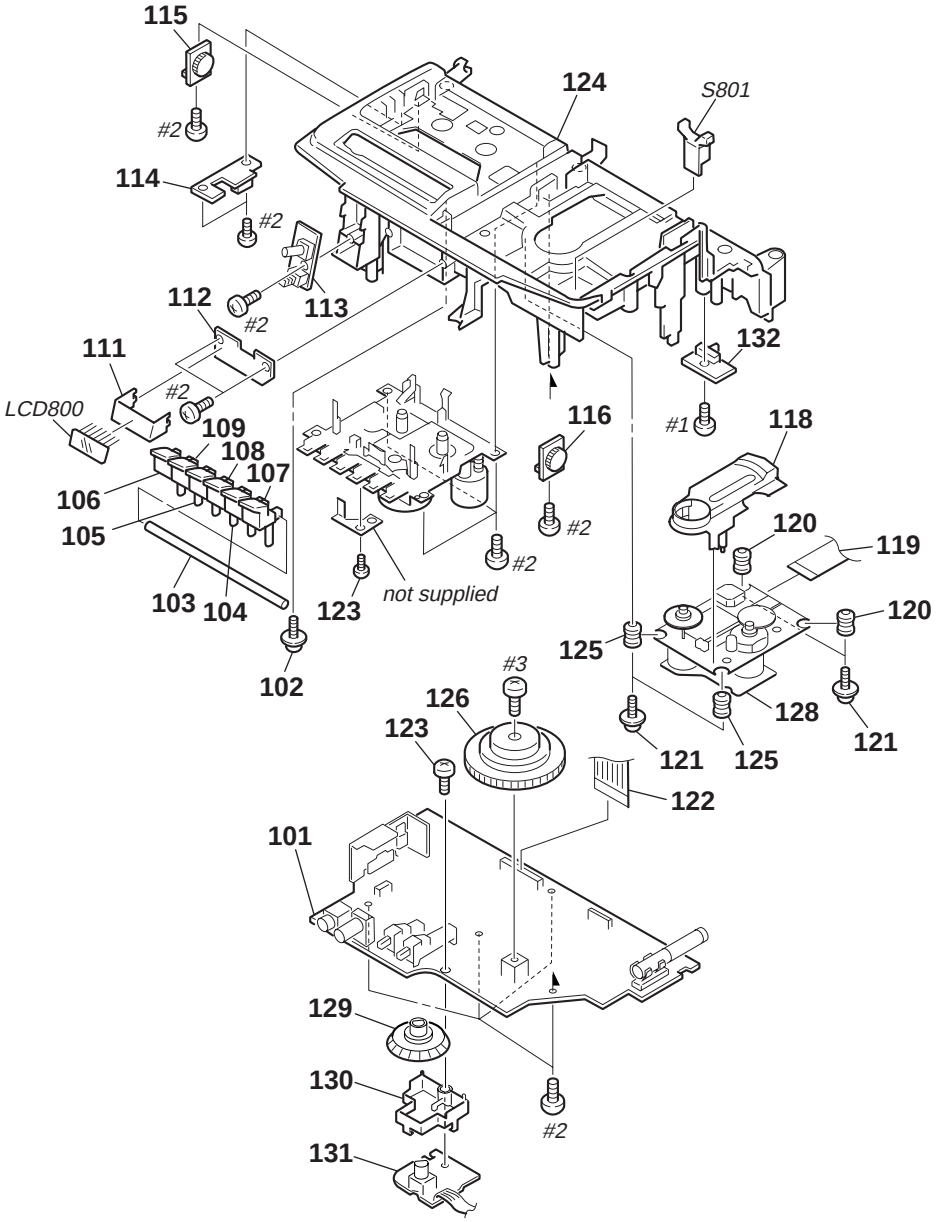


Ref. No.	Part No.	Description	Remarks
51	3-031-561-01	SPRING, CASSETTE UP	
* 52	1-672-956-11	POWER BOARD	
53	1-533-233-31	HOLDER, FUSE	
54	3-031-570-11	KNOB(FUNCTION) (EA)	
55	3-031-550-01	BUTTON (MEGA BASS)	
57	X-3377-296-1	HOLDER ASSY, CASSETTE (EA, AEP, CEF, CET)	
57	X-3377-423-1	HOLDER ASSY, CASSETTE (E, SP)	
58	3-031-538-51	LID(CD) (EA, AEP, CEF, CET)	
58	3-031-538-61	LID(CD) (E, SP)	
59	1-452-899-11	MAGNET	
60	3-019-395-01	PLATE, CHUCKING	
61	3-031-562-01	SPRING (CD) (AEP, CEF, CET)	
61	3-031-562-01	SPRING (CD) (E, EA, SP)	
62	3-031-857-01	TERMINAL, ANTENNA	
63	3-031-540-01	HANDLE (EA, AEP, CEF, CET)	
63	3-031-540-51	HANDLE (E, SP)	

Ref. No.	Part No.	Description	Remarks
* 64	1-672-302-11	BATTERY BOARD	
65	3-028-154-01	TERMINAL (–), BATT	
66	4-960-167-01	SCREW (3 × 8) (DIA. 10), +WH	
* 67	1-672-358-11	HALF BATTERY BOARD	
68	3-036-134-01	LID,BATTERY CASE (E, SP)	
68	3-926-244-81	LID,BATTERY CASE (EA, AEP, CEF, CET)	
69	3-032-549-01	CABINET (REAR) (AEP, CEF, CET)	
69	3-032-549-11	CABINET (REAR) (EA)	
69	3-032-549-21	CABINET (REAR) (E, SP)	
70	3-034-633-01	COVER (VOL SEL) (E, EA, SP)	
71	1-672-960-11	VOLTAGE SELECTION BOARD (E, EA, SP)	
ANT1	1-501-918-21	ANTENNA, TELESCOPIC	
⚠F901	1-532-389-31	FUSE (0.5A/250V) (E, EA, SP)	
⚠F902	1-532-465-31	FUSE (3.15A/250V) (AEP, CEF, CET)	
⚠T901	1-433-580-11	TRANSFORMER, POWER (AEP, CEF, CET)	
⚠T901	1-433-581-11	TRANSFORMER, POWER (E, EA, SP)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

7-3. UPPER CABINET SECTION

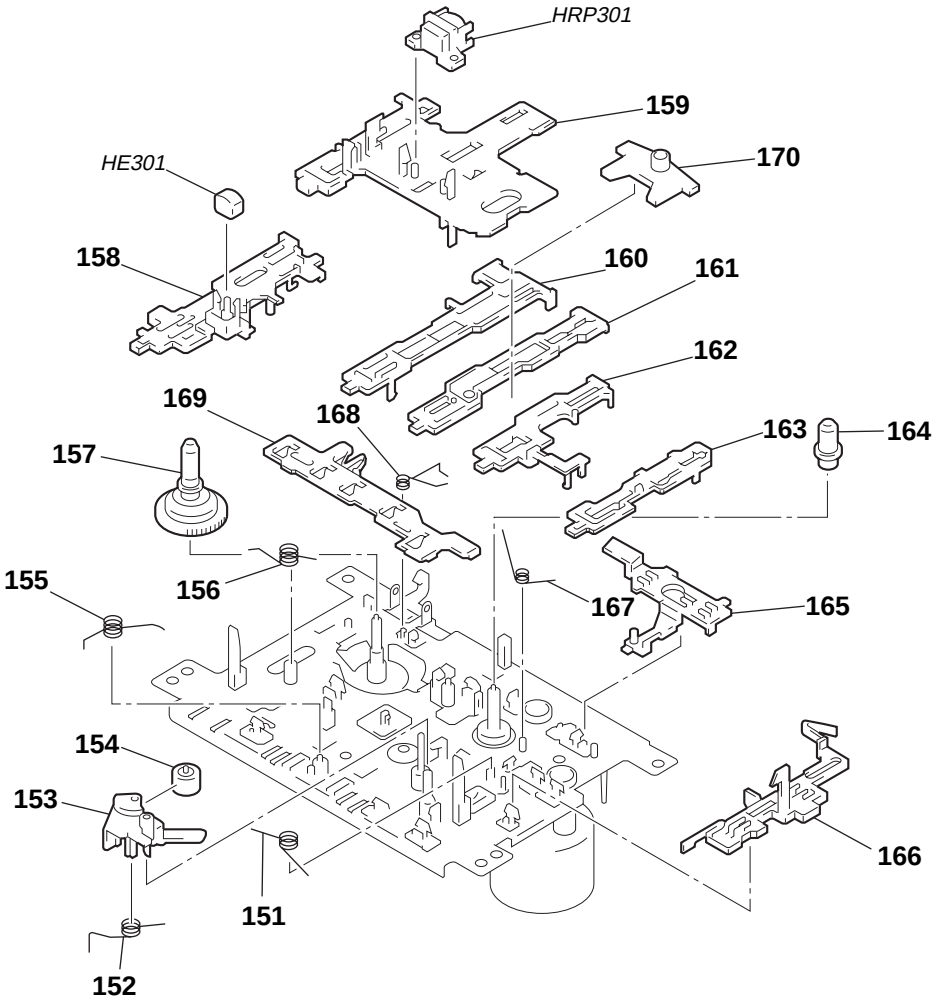


Ref. No.	Part No.	Description	Remarks
* 101	A-3321-964-A	MAIN BOARD, COMPLETE (EA)	
* 101	A-3321-968-A	MAIN BOARD, COMPLETE (E, SP)	
* 101	A-3322-079-A	MAIN BOARD, COMPLETE (AEP,CET)	
* 101	A-3322-080-A	MAIN BOARD, COMPLETE (CEF)	
102	4-960-167-01	SCREW (3 × 8) (DIA. 10), +WH	
103	3-031-560-01	SHAFT (MD)	
104	3-031-545-41	BUTTON (STOP)	
105	3-031-543-41	BUTTON (REW)	
106	3-031-541-41	BUTTON (REC)	
107	3-031-546-41	BUTTON (PAUSE)	
108	3-031-544-41	BUTTON (FF)	
109	3-031-542-41	BUTTON (PLAY)	
111	3-018-834-01	HOLDER (406), LCD	
* 112	1-672-957-11	LCD BOARD	
* 113	1-672-473-11	VOLUME BOARD (AEP, CEF, CET)	
* 113	1-672-959-11	VOLUME BOARD (E, EA, SP)	
114	1-672-955-11	RECORD SWITCH BOARD	
115	3-922-112-21	DAMPER	
116	3-922-112-31	DAMPER (AEP, CEF, CET)	

Ref. No.	Part No.	Description	Remarks
116	3-922-112-41	DAMPER (E, EA, SP)	
118	3-923-736-01	COVER, CD	
119	1-777-955-11	WIRE (FLAT TYPE) (16 CORE)	
120	3-910-095-31	RUBBER, VIBRATION PROOF	
121	3-921-725-01	SCREW (2.6 × 10), +PWH	
122	1-773-119-11	WIRE (FLAT TYPE) (19 CORE)	
123	4-951-620-01	SCREW (2.6 × 8), +BVTP	
124	3-031-537-61	CABINET (UPPER) (EA, AEP, CEF, CET)	
124	3-031-537-71	CABINET (UPPER) (E, SP)	
125	3-910-095-21	RUBBER, VIBRATION PROOF	
126	3-032-102-01	GEAR (PVC) (3 BAND) (EA)	
* 128	1-639-678-12	CDMOTOR BOARD	
129	3-031-554-01	KNOB (FT) (EA)	
130	3-031-555-01	CHASSIS (FT) (EA)	
131	1-672-961-11	FINE TUNING BOARD	
132	1-672-776-11	MONO ST BOARD (AEP, CEF, CET)	
S801	1-692-960-11	SWITCH, PUSH (1 KEY)	
LCD800	1-801-913-11	DISPLAY PANEL, LIQUID CRYSTAL	

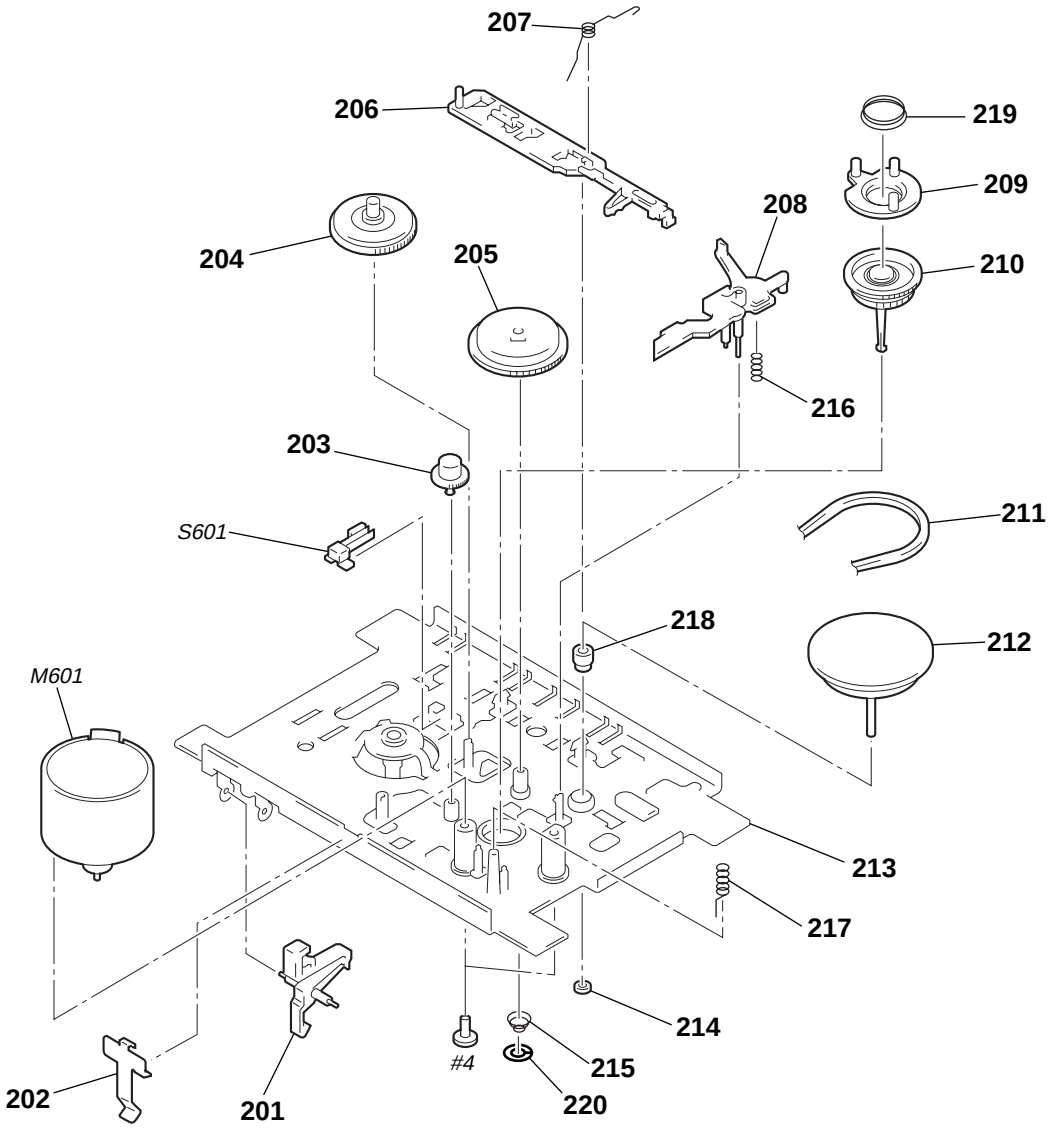
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

7-4. MECHANISM DECK SECTION (1)
(MF-V10-117)



Ref. No.	Part No.	Description	Remarks
151	3-933-010-01	SPRING (S/P), TORSION	
152	3-933-025-01	SPRING (P), TORSION	
153	3-933-026-01	LEVER (P)	
154	3-933-024-01	ROLLER, PINCH	
155	3-933-019-01	SPRING (F/R), TORSION	
156	3-933-028-01	SPRING (FWD), TORSION	
157	3-933-016-01	GEAR (S REEL)	
158	3-008-590-01	SLIDER (REC)	
159	3-008-592-01	BASE (H), HEAD	
* 160	3-008-588-01	SLIDER (REW)	
* 161	3-008-589-13	SLIDER (FF)	
* 162	3-008-587-01	SLIDER (STOP)	
* 163	3-008-591-01	SLIDER (PAUSE)	
164	3-933-004-01	CLAW, REEL	
* 165	3-933-021-01	SLIDER (FRP)	
* 166	3-933-006-01	SLIDER (EJECT)	
167	3-934-833-01	SPRING (FRP)	
168	3-022-794-02	SPRING (BT)	
169	3-933-007-01	PLATE, LOCK	
* 170	3-012-114-01	LEVER (FR)	
HE301	1-543-876-11	HEAD (ERASE)	
HRP301	1-500-454-11	HEAD,MAGNETIC(RECORD/PLAYBACK)	

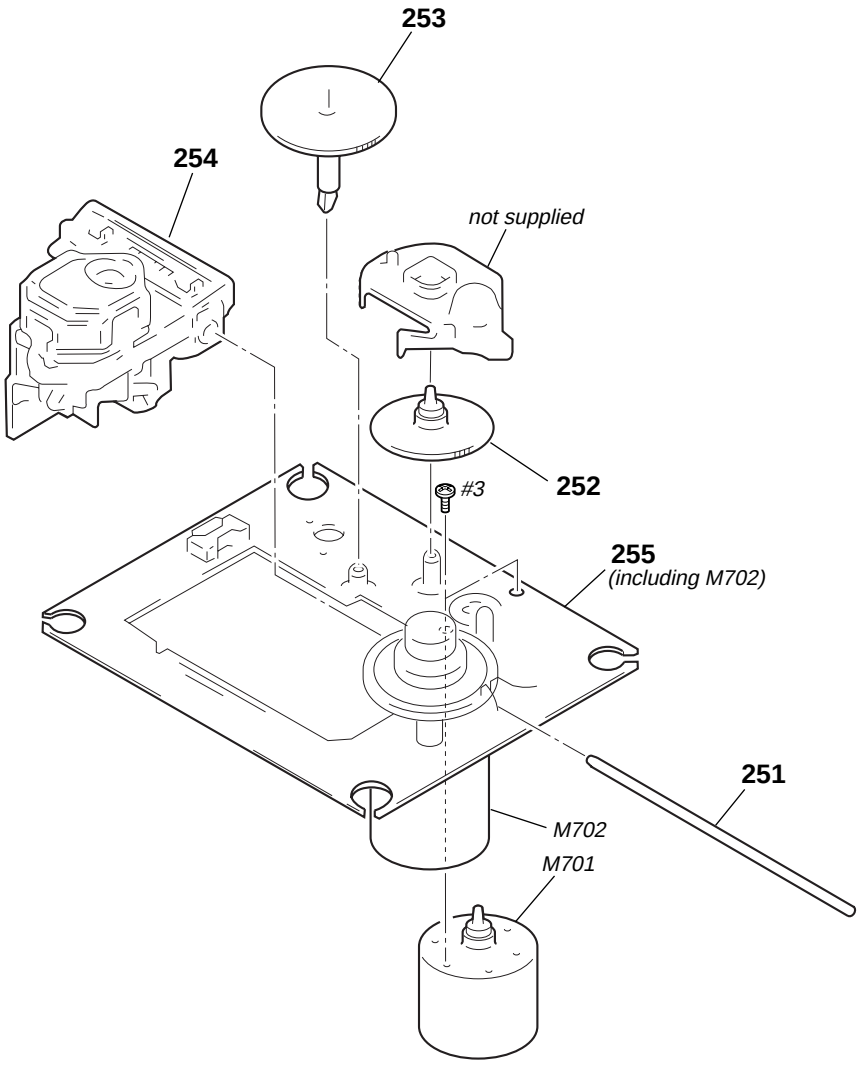
7-5. MECHANISM DECK SECTION (2)
(MF-V10-117)



Ref. No.	Part No.	Description	Remarks
201	3-933-029-01	LEVER, ERASING PREVENTION	
202	3-933-182-01	SPRING, CASSETTE	
203	3-932-995-01	GEAR (MID)	
204	X-3371-667-1	CLUTCH ASSY	
205	3-932-997-01	GEAR (CAM)	
* 206	3-932-999-01	SLIDER (SW)	
207	3-932-998-01	SPRING (GROUND), TORSION	
208	3-009-648-01	LEVER (S.OFF)	
209	3-936-438-01	LEVER (K)	
210	X-3373-572-1	REEL ASSY (N), T	
211	3-933-020-01	BELT	

Ref. No.	Part No.	Description	Remarks
212	X-3372-924-1	FLYWHEEL ASSY	
213	3-932-993-01	CHASSIS, OUTSERT	
214	3-343-358-01	RING, RETAINING	
215	3-933-005-01	SPRING (CAM), COMPRESSION	
216	3-939-383-02	SPRING, COMPRESSION	
217	3-937-760-01	SPRING (GROUND), COMPRESSION	
218	3-934-336-01	BEARING	
219	3-009-650-02	SPRING (K), COMPRESSION	
220	3-016-349-01	WASHER	
M601	A-3320-446-A	MOTOR ASSY(LOADING)(WITH PULLEY)	
S601	1-762-679-11	SWITCH, LEAF(MD POWER)	

7-6. OPTICAL PICK-UP SECTION (KSM-213CDM)



Ref. No.	Part No.	Description	Remarks
251	2-626-908-01	SHAFT, SLED	
252	2-627-003-02	GEAR (B)(RP)	
253	2-626-907-01	GEAR (A)(S)	
⚠254	8-848-483-05	OPTICAL PICK-UP KSS-213C	
255	X-2626-202-1	CHASSIS ASSY (MB)(RP), MOTOR (SPINDLE) (INCLUDING M702)	
M701	X-2625-769-1	GEAR ASSY (MB)(RP), MOTOR (SLED)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: µH
- Abbreviation
  EA : Saudi Arabia model
  SP : Singapore model
  CEF : Italian model
  CET : East European and Russian model
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
*	1-672-302-11	BATTERY BOARD			
		**********			
	3-028-154-01	TERMINAL (-), BATT			
**********					
*	1-639-678-12	CD MOTOR BOARD			
		**********			
		< CONNECTOR >			
CNP707	1-564-722-11	PIN, CONNECTOR (SMALL TYPE) 6P			
		< SWITCH >			
S701	1-572-085-11	SWITCH, LEAF (LIMIT)			
**********					
*	1-673-261-11	CONNECTOR BOARD			
		**********			
		< CONNECTOR >			
* CNP803	1-785-673-11	PIN, CONNECTOR (PC BOARD) 7P			
**********					
*	1-672-958-11	CONTROL BOARD			
		**********			
		< RESISTOR >			
R860	1-249-417-11	CARBON	1K	5%	1/4W F (E,EA,SP)
R861	1-249-417-11	CARBON	1K	5%	1/4W F (E,EA,SP)
R862	1-249-417-11	CARBON	1K	5%	1/4W F (E,EA,SP)
R863	1-249-417-11	CARBON	1K	5%	1/4W F (E,EA,SP)
		< SWITCH >			
S801	1-762-798-11	SWITCH, KEYBOARD (MODE)			
S802	1-762-798-11	SWITCH, KEYBOARD (DISPLAY/ENTER)			
S803	1-762-798-11	SWITCH, KEYBOARD (PLAY)			
S804	1-762-798-11	SWITCH, KEYBOARD (STOP)			
S805	1-762-798-11	SWITCH, KEYBOARD (FR)			
S806	1-762-798-11	SWITCH, KEYBOARD (FF)			
**********					
*	1-672-961-11	FINE TUNING BOARD			
		**********			
		< CAPACITOR >			
C91	1-162-294-31	CERAMIC	0.001uF	10%	50V
		< RESISTOR >			
R90	1-249-417-11	CARBON	1K	5%	1/4W F
R91	1-249-431-11	CARBON	15K	5%	1/4W
		< VARIABLE RESISTOR >			
RV91	1-223-598-11	RES, VAR, CARBON 100K (FINE TUNING)			
**********					
*	1-672-358-11	HALF BATTERY BOARD			
		**********			
	3-028-154-01	TERMINAL (–), BATT			
		< CONNECTOR >			
* CNP908	1-785-668-11	PIN, CONNECTOR (PC BOARD) 2P			
**********					
*	1-672-957-11	LCD BOARD			
		**********			
	3-018-845-01	HOLDER(406), LCD			
		< CONNECTOR >			
CNP801	1-695-380-31	PIN, CONNECTOR (PC BOARD) 19P			
		< LIQUID CRYSTAL DISPLAY >			
LCD800	1-801-913-11	DISPLAY PANEL, LIQUID CRYSTAL			
**********					
*	A-3321-964-A	MAIN BOARD, COMPLETE (EA)			
		**********			
*	A-3321-968-A	MAIN BOARD, COMPLETE (E, SP)			
		**********			
*	A-3322-079-A	MAIN BOARD, COMPLETE (AEP,CET)			
		**********			
*	A-3322-080-A	MAIN BOARD, COMPLETE (CEF)			
		**********			
	3-031-554-01	KNOB(FT) (E, SP, AEP, CEF, CET)			
	3-031-555-01	CHASSIS (FT) (E, SP, AEP, CEF, CET)			
	3-031-570-11	KNOB(FUNCTION) (E, SP, AEP, CEF, CET)			
	3-032-102-01	GEAR(PVC) (3 BAND) (E, SP, AEP, CEF, CET)			
	4-951-620-01	SCREW(2.6 × 8), +BVTP (E, SP, AEP, CEF, CET)			
	7-621-775-20	SCREW+B 2.6 × 5 (E, SP, AEP, CEF, CET)			
	7-685-647-79	SCREW+BVTP 3 × 10 TYPE2 N-S (E, SP, AEP, CEF, CET)			

Ref. No.	Part No.	Description			Remarks
		< CAPACITOR >			
C1	1-162-215-31	CERAMIC	47PF	5%	50V
C4	1-124-907-11	ELECT	10uF	20%	50V
C5	1-162-205-31	CERAMIC	18PF	5%	50V
					(E, EA, SP, CEF)
C5	1-162-206-31	CERAMIC	20PF	5%	50V
					(AEP,CET)
C6	1-162-191-31	CERAMIC	2.2PF	10%	50V(EA)
C7	1-162-201-31	CERAMIC	12PF	5%	50V
C8	1-162-193-31	CERAMIC	3.3PF	10%	50V
					(E, EA, SP)
C8	1-162-191-31	CERAMIC	2.2PF	10%	50V
					(AEP,CEF,CET)
C9	1-162-306-11	CERAMIC	0.01uF	20%	16V
C10	1-102-960-00	CERAMIC	24PF	5%	50V
					(E,SP,AEP,CET)
C10	1-102-961-00	CERAMIC	27PF	5%	50V
					(EA,CEF)
C11	1-162-306-11	CERAMIC	0.01uF	20%	16V
C12	1-162-306-11	CERAMIC	0.01uF	20%	16V
C15	1-126-963-11	ELECT	4.7uF	20%	50V
C16	1-124-903-11	ELECT	1uF	20%	50V
C17	1-104-664-11	ELECT	47uF	20%	10V
C18	1-127-876-21	CERAMIC	0.01uF	10%	50V
C19	1-127-876-21	CERAMIC	0.01uF	10%	50V
C20	1-124-903-11	ELECT	1uF	20%	50V
C21	1-126-961-11	ELECT	2.2uF	20%	50V
C22	1-104-664-11	ELECT	47uF	20%	10V
C23	1-124-902-00	ELECT	0.47uF	20%	50V
C24	1-126-963-11	ELECT	4.7uF	20%	50V
C27	1-104-664-11	ELECT	47uF	20%	10V
C28	1-162-306-11	CERAMIC	0.01uF	20%	16V
C36	1-102-942-00	CERAMIC	5.0PF	+-0.5PF	50V
C38	1-164-617-11	CERAMIC	4PF	5%	50V
C42	1-110-342-11	FILM	390PF	5%	63V
C43	1-136-683-11	FILM	0.0056uF	5%	63V
C44	1-130-726-00	FILM	0.0015uF	5%	63V
C45	1-162-294-31	CERAMIC	0.001uF	10%	50V
C47	1-162-282-31	CERAMIC	100PF	10%	50V
					(E, EA, SP)
C48	1-162-294-31	CERAMIC	0.001uF	10%	50V
C52	1-162-206-31	CERAMIC	20PF	5%	50V
C54	1-162-205-31	CERAMIC	18PF	5%	50V
C56	1-162-306-11	CERAMIC	0.01uF	20%	16V
C57	1-162-294-31	CERAMIC	0.001uF	10%	50V
C60	1-162-294-31	CERAMIC	0.001uF	10%	50V
					(AEP,CEF,CET)
C101	1-162-301-11	CERAMIC	0.0015uF	20%	16V
C102	1-104-664-11	ELECT	47uF	20%	10V
C103	1-127-883-21	CERAMIC	0.039uF	10%	50V
C104	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C105	1-162-215-31	CERAMIC	47PF	5%	50V
C108	1-126-956-91	ELECT	0.1uF	20%	50V
C109	1-124-903-11	ELECT	1uF	20%	50V
C121	1-124-903-11	ELECT	1uF	20%	50V
C122	1-127-885-21	CERAMIC	0.056uF	10%	50V
C140	1-124-252-00	ELECT	0.33uF	20%	50V
C151	1-104-664-11	ELECT	47uF	20%	10V
C152	1-162-294-31	CERAMIC	0.001uF	10%	50V

Ref. No.	Part No.	Description			Remarks
C153	1-124-443-00	ELECT	100uF	20%	10V
C154	1-124-443-00	ELECT	100uF	20%	10V
C155	1-104-664-11	ELECT	47uF	20%	10V
C156	1-136-165-00	FILM	0.1uF	5%	50V
C157	1-127-883-21	CERAMIC	0.039uF	10%	50V
C158	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C159	1-104-664-11	ELECT	47uF	20%	10V
C160	1-136-165-00	FILM	0.1uF	5%	50V
C161	1-124-443-00	ELECT	100uF	20%	10V
C162	1-124-907-11	ELECT	10uF	20%	50V
C201	1-162-301-11	CERAMIC	0.0015uF	20%	16V
C202	1-104-664-11	ELECT	47uF	20%	10V
C203	1-127-883-21	CERAMIC	0.039uF	10%	50V
C204	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C205	1-162-215-31	CERAMIC	47PF	5%	50V
C208	1-126-956-91	ELECT	0.1uF	20%	50V
C209	1-124-903-11	ELECT	1uF	20%	50V
C221	1-124-903-11	ELECT	1uF	20%	50V
C222	1-127-885-21	CERAMIC	0.056uF	10%	50V
C240	1-124-252-00	ELECT	0.33uF	20%	50V
C251	1-104-664-11	ELECT	47uF	20%	10V
C252	1-162-294-31	CERAMIC	0.001uF	10%	50V
C253	1-124-443-00	ELECT	100uF	20%	10V
C254	1-124-443-00	ELECT	100uF	20%	10V
C255	1-104-664-11	ELECT	47uF	20%	10V
C256	1-136-165-00	FILM	0.1uF	5%	50V
C257	1-127-883-21	CERAMIC	0.039uF	10%	50V
C258	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C259	1-104-664-11	ELECT	47uF	20%	10V
C260	1-136-165-00	FILM	0.1uF	5%	50V
C261	1-124-443-00	ELECT	100uF	20%	10V
C262	1-124-907-11	ELECT	10uF	20%	50V
C301	1-124-443-00	ELECT	100uF	20%	10V
C302	1-124-443-00	ELECT	100uF	20%	10V
C303	1-124-907-11	ELECT	10uF	20%	50V
C304	1-124-443-00	ELECT	100uF	20%	10V
C311	1-127-867-21	CERAMIC	1800PF	10%	50V
C312	1-104-664-11	ELECT	47uF	20%	10V
C313	1-130-468-00	MYLAR	560PF	5%	50V
C315	1-162-306-11	CERAMIC	0.01uF	20%	16V
C316	1-126-962-11	ELECT	3.3uF	20%	50V
C317	1-126-233-11	ELECT	22uF	20%	50V
C320	1-101-005-00	CERAMIC	22000PF	50V	
C341	1-126-937-11	ELECT	4700uF	20%	16V
C343	1-162-306-11	CERAMIC	0.01uF	20%	16V
C345	1-162-306-11	CERAMIC	0.01uF	30%	16V
C346	1-162-306-11	CERAMIC	0.01uF	30%	16V
C347	1-126-925-11	ELECT	470uF	20%	10V
C348	1-104-666-11	ELECT	220uF	20%	10V
C359	1-162-306-11	CERAMIC	0.01uF	20%	16V
C401	1-124-903-11	ELECT	1uF	20%	50V
C701	1-162-600-11	CERAMIC	0.0047uF	20%	16V
C702	1-162-306-11	CERAMIC	0.01uF	20%	16V
C703	1-162-305-11	CERAMIC	0.0068uF	20%	16V
C704	1-130-491-00	MYLAR	0.047uF	5%	50V
C705	1-162-306-11	CERAMIC	0.01uF	20%	16V
C706	1-104-664-11	ELECT	47uF	20%	10V
C707	1-161-494-00	CERAMIC	0.022uF	25V	
C708	1-136-165-00	FILM	0.1uF	5%	50V
C709	1-136-165-00	FILM	0.1uF	5%	50V

MAIN

Ref. No.	Part No.	Description			Remarks
C710	1-162-302-11	CERAMIC	0.0022uF	20%	16V
C711	1-162-202-31	CERAMIC	13PF	5%	50V
C712	1-162-294-31	CERAMIC	0.001uF	10%	50V
C713	1-136-165-00	FILM	0.1uF	5%	50V
C714	1-136-165-00	FILM	0.1uF	5%	50V
C715	1-124-907-11	ELECT	10uF	20%	50V
C716	1-136-165-00	FILM	0.1uF	5%	50V
C717	1-130-483-00	MYLAR	0.01uF	5%	50V
C718	1-131-377-00	TANTALUM	10uF	10%	10V
C719	1-104-664-11	ELECT	47uF	20%	10V
C720	1-162-306-11	CERAMIC	0.01uF	20%	16V
C721	1-130-483-00	MYLAR	0.01uF	5%	50V
C722	1-130-489-00	MYLAR	0.033uF	5%	50V
C723	1-162-306-11	CERAMIC	0.01uF	20%	16V
C724	1-130-489-00	MYLAR	0.033uF	5%	50V
C725	1-130-486-00	MYLAR	0.018uF	10%	50V
C726	1-162-306-11	CERAMIC	0.01uF	20%	16V
C727	1-162-199-31	CERAMIC	10PF	5%	50V
C728	1-104-664-11	ELECT	47uF	20%	10V
C729	1-126-962-11	ELECT	3.3uF	20%	50V
C730	1-130-493-00	MYLAR	0.068uF	5%	50V
C731	1-162-215-31	CERAMIC	47PF	5%	50V
C732	1-162-306-11	CERAMIC	0.01uF	20%	16V
C733	1-162-282-31	CERAMIC	100PF	10%	50V
C734	1-162-282-31	CERAMIC	100PF	10%	50V
C735	1-162-282-31	CERAMIC	100PF	10%	50V
C736	1-162-294-31	CERAMIC	0.001uF	10%	50V
C737	1-161-494-00	CERAMIC	0.022uF	25V	
C739	1-162-282-31	CERAMIC	100PF	10%	50V
C740	1-162-282-31	CERAMIC	100PF	10%	50V
C741	1-127-878-21	CERAMIC	0.015uF	10%	50V
C742	1-162-306-11	CERAMIC	0.01uF	20%	16V
C743	1-104-664-11	ELECT	47uF	20%	10V
C744	1-126-925-11	ELECT	470uF	20%	10V
C761	1-162-294-31	CERAMIC	0.001uF	10%	50V
C799	1-130-489-00	MYLAR	0.033uF	5%	50V
C801	1-104-664-11	ELECT	47uF	20%	10V
C802	1-126-233-11	ELECT	22uF	20%	50V
C805	1-126-963-11	ELECT	4.7uF	20%	50V
C806	1-126-963-11	ELECT	4.7uF	20%	50V
C807	1-162-292-31	CERAMIC	680PF	10%	50V
C808	1-162-292-31	CERAMIC	680PF	10%	50V
C809	1-162-284-31	CERAMIC	150PF	10%	50V
C810	1-162-284-31	CERAMIC	150PF	10%	50V
C811	1-124-907-11	ELECT	10uF	20%	50V
C812	1-162-306-11	CERAMIC	0.01uF	20%	16V
C814	1-162-306-11	CERAMIC	0.01uF	20%	16V
C815	1-162-203-31	CERAMIC	15PF	5%	50V
C816	1-162-203-31	CERAMIC	15PF	5%	50V
C817	1-162-306-11	CERAMIC	0.01uF	20%	16V
C818	1-162-306-11	CERAMIC	0.01uF	20%	16V
C819	1-162-306-11	CERAMIC	0.01uF	20%	16V
C820	1-137-194-81	FILM	0.47uF	5%	50V
C821	1-162-306-11	CERAMIC	0.01uF	20%	16V
C822	1-162-290-31	CERAMIC	470PF	10%	50V
C823	1-162-286-21	CERAMIC	220PF	10%	50V
C824	1-136-169-00	FILM	0.22uF	5%	50V
C825	1-162-306-11	CERAMIC	0.01uF	20%	16V
C826	1-162-306-11	CERAMIC	0.01uF	20%	16V
C828	1-162-306-11	CERAMIC	0.01uF	20%	16V
C829	1-162-306-11	CERAMIC	0.01uF	20%	16V
C831	1-162-306-11	CERAMIC	0.01uF	20%	16V

< FILTER >

CF1	1-760-738-61	FILTER, CERAMIC (10.7MHz)
CF2	1-781-403-11	FILTER, CERAMIC (455kHz)

< CONNECTOR >

*	CNP301	1-785-656-11	PIN, CONNECTOR (PC BOARD) 4P
*	CNP303	1-785-656-11	PIN, CONNECTOR (PC BOARD) 4P
*	CNP304	1-785-656-11	PIN, CONNECTOR (PC BOARD) 4P
	CNP702	1-770-646-11	CONNECTOR, FFC/FPC 16P
	CNP802	1-695-342-31	PIN, CONNECTOR (PC BOARD) 19P

< TRIMMER >

CT1-4	1-141-583-11	CAP, VAR (INCLUDING CV1)
CT5	1-141-486-11	CAP, ADJ 10PF
CT6	1-141-485-11	CAP, ADJ 5PF
CT9	1-141-485-11	CAP, ADJ 5PF
CT10	1-141-485-11	CAP, ADJ 5PF

< VARIABLE CAPACITOR >

CV1	1-141-583-11	CAP, VAR (TUNING)

< DIODE >

D1	8-719-991-33	DIODE 1SS133T-77
D2	8-719-991-33	DIODE 1SS133T-77
D3	8-719-991-33	DIODE 1SS133T-77
D4	8-719-991-33	DIODE 1SS133T-77
D301	8-719-991-33	DIODE 1SS133T-77
D302	8-719-991-33	DIODE 1SS133T-77
D307	8-719-991-33	DIODE 1SS133T-77
D308	8-719-109-90	DIODE RD5.6ESB3
D310	8-719-038-29	LED SLP-181B-51(OPR/BATT)
D311	8-719-109-98	DIODE RD6.8ES-B3
D312	8-719-991-33	DIODE 1SS133T-77
D314	8-719-991-33	DIODE 1SS133T-77
D401	8-719-991-33	DIODE 1SS133T-77
D402	8-719-991-33	DIODE 1SS133T-77
D403	8-719-991-33	DIODE 1SS133T-77
D404	8-719-991-33	DIODE 1SS133T-77
D406	8-719-991-33	DIODE 1SS133T-77
D407	8-719-991-33	DIODE 1SS133T-77
D408	8-719-991-33	DIODE 1SS133T-77
D409	8-719-991-33	DIODE 1SS133T-77
D410	8-719-991-33	DIODE 1SS133T-77
D411	8-719-991-33	DIODE 1SS133T-77
D801	8-719-991-33	DIODE 1SS133T-77

< IC >

IC1	8-752-056-23	IC CXA1538S
IC301	8-759-264-71	IC TA2068N
IC303	8-759-426-51	IC BA5417
IC304	8-759-426-51	IC BA5417
IC701	8-752-082-14	IC CXA1992BR
IC702	8-752-891-81	IC CXP401-602R
IC703	8-759-473-42	IC BA6898FP

< JACK >

J301	1-568-267-11	JACK(PHONES)

Ref. No.	Part No.	Description				Remarks
		< CABLE HOLDER >				
* KH306	1-565-386-11	HOLDER, CABLE 5P				
* KH803	1-568-135-21	HOLDER, CABLE 7P				
* KH902	1-565-385-11	HOLDER, CABLE 4P				
		< COIL >				
L1	1-406-998-11	COIL, AIR-CORE				
L2	1-416-509-11	COIL, AIR-CORE (E,SP,AEP,CET)				
L2	1-406-957-21	COIL(WITH CORE) (EA,CEF)				
L3	1-754-028-11	ANTENNA, FERRITE-ROD (MW)				
L4	1-406-253-11	COIL(OSC)				
L5	1-402-597-31	COIL(ANT)				
L6	1-406-247-11	COIL(OSC)				
L7	1-416-843-11	COIL(ANT)				
L8	1-406-470-11	COIL(OSC)				
L9	1-412-482-11	INDUCTOR 0.33uH				
L701	1-412-911-11	FERRITE 0uH				
		< TRANSISTOR >				
Q1	8-729-029-72	TRANSISTOR DTC114YSA				
Q2	8-729-922-66	TRANSISTOR 2SC2410SN				
Q101	8-729-036-80	TRANSISTOR KRC110M				
Q102	8-729-194-57	TRANSISTOR 2SC945-P				
Q103	8-729-194-57	TRANSISTOR 2SC945-P				
Q201	8-729-036-80	TRANSISTOR KRC110M				
Q202	8-729-194-57	TRANSISTOR 2SC945-P				
Q203	8-729-194-57	TRANSISTOR 2SC945-P				
Q301	8-729-281-53	TRANSISTOR 2SC1815-GR				
Q307	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q308	8-729-036-57	TRANSISTOR KRC101M-AT				
Q309	8-729-021-82	TRANSISTOR 2SD2396K				
Q310	8-729-011-92	TRANSISTOR 2SC2001TP-K1K2				
Q401	8-729-029-72	TRANSISTOR DTC114YSA				
Q402	8-729-029-72	TRANSISTOR DTC114YSA				
Q403	8-729-029-72	TRANSISTOR DTC114YSA				
Q404	8-729-230-45	TRANSISTOR 2SC2458-YGR				
Q405	8-729-037-29	TRANSISTOR KRA102M				
Q406	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q407	8-729-029-72	TRANSISTOR DTC114YSA				
Q408	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q409	8-729-011-92	TRANSISTOR 2SC2001TP-K1K2				
Q701	8-729-195-23	TRANSISTOR 2SA952				
Q801	8-729-036-67	TRANSISTOR KRC111M-AT				
		< RESISTOR >				
R1	1-249-411-11	CARBON	330	5%	1/4W	
R3	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R5	1-249-411-11	CARBON	330	5%	1/4W	
R6	1-249-441-11	CARBON	100K	5%	1/4W	
R7	1-249-403-11	CARBON	68	5%	1/4W	F
R11	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R12	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R14	1-249-429-11	CARBON	10K	5%	1/4W	
R15	1-249-429-11	CARBON	10K	5%	1/4W (AEP,CEF,CET)	
R17	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R18	1-249-417-11	CARBON	1K	5%	1/4W	F
R32	1-249-441-11	CARBON	100K	5%	1/4W	
R40	1-249-402-11	CARBON	56	5%	1/4W	F
R47	1-249-429-11	CARBON	10K	5%	1/4W	
R101	1-249-431-11	CARBON	15K	5%	1/4W	
R102	1-249-404-00	CARBON	82	5%	1/4W	F
R103	1-249-441-11	CARBON	100K	5%	1/4W	
R104	1-247-843-11	CARBON	3.3K	5%	1/4W	
R105	1-249-434-11	CARBON	27K	5%	1/4W	
R106	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R109	1-249-426-11	CARBON	5.6K	5%	1/4W	
R110	1-247-807-31	CARBON	100	5%	1/4W	
R121	1-249-415-11	CARBON	680	5%	1/4W	F
R122	1-247-843-11	CARBON	3.3K	5%	1/4W	
R123	1-247-895-91	CARBON	470K	5%	1/4W	
R124	1-247-815-91	CARBON	220	5%	1/4W	F
R140	1-249-441-11	CARBON	100K	5%	1/4W	
R141	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R143	1-249-429-11	CARBON	10K	5%	1/4W	
R151	1-249-417-11	CARBON	1K	5%	1/4W	F
R153	1-249-411-11	CARBON	330	5%	1/4W	
R154	1-247-807-31	CARBON	100	5%	1/4W	
R155	1-249-431-11	CARBON	15K	5%	1/4W	
R156	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R157	1-249-411-11	CARBON	330	5%	1/4W	
R158	1-249-432-11	CARBON	18K	5%	1/4W	
R159	1-249-414-11	CARBON	560	5%	1/4W	F
R160	1-249-385-11	CARBON	2.2	5%	1/6W	F
R161	1-249-385-11	CARBON	2.2	5%	1/6W	F
R162	1-249-417-11	CARBON	1K	5%	1/4W	F
R201	1-249-431-11	CARBON	15K	5%	1/4W	
R202	1-249-404-00	CARBON	82	5%	1/4W	F
R203	1-249-441-11	CARBON	100K	5%	1/4W	
R204	1-247-843-11	CARBON	3.3K	5%	1/4W	
R205	1-249-434-11	CARBON	27K	5%	1/4W	
R206	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R209	1-249-426-11	CARBON	5.6K	5%	1/4W	
R210	1-247-807-31	CARBON	100	5%	1/4W	
R221	1-249-415-11	CARBON	680	5%	1/4W	F
R222	1-247-843-11	CARBON	3.3K	5%	1/4W	
R223	1-247-895-91	CARBON	470K	5%	1/4W	
R224	1-247-815-91	CARBON	220	5%	1/4W	F
R240	1-249-441-11	CARBON	100K	5%	1/4W	
R241	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R243	1-249-429-11	CARBON	10K	5%	1/4W	
R251	1-249-417-11	CARBON	1K	5%	1/4W	F
R253	1-249-411-11	CARBON	330	5%	1/4W	
R254	1-247-807-31	CARBON	100	5%	1/4W	
R255	1-249-431-11	CARBON	15K	5%	1/4W	
R256	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R257	1-249-411-11	CARBON	330	5%	1/4W	
R258	1-249-432-11	CARBON	18K	5%	1/4W	
R259	1-249-414-11	CARBON	560	5%	1/4W	F
R260	1-249-385-11	CARBON	2.2	5%	1/6W	F
R261	1-249-385-11	CARBON	2.2	5%	1/6W	F
R262	1-249-417-11	CARBON	1K	5%	1/4W	F
R301	1-247-903-00	CARBON	1M	5%	1/4W	
R302	1-249-441-11	CARBON	100K	5%	1/4W	
R303	1-249-417-11	CARBON	1K	5%	1/4W	F
R305	1-247-903-00	CARBON	1M	5%	1/4W	
R306	1-249-429-11	CARBON	10K	5%	1/4W	
R307	1-249-429-11	CARBON	10K	5%	1/4W	
R309	1-249-417-11	CARBON	1K	5%	1/4W	F
R311	1-249-406-11	CARBON	120	5%	1/4W	F
R312	1-249-427-11	CARBON	6.8K	5%	1/4W	F

MAIN **MONO ST** **POWER**

Ref. No.	Part No.	Description			Remarks
R313	1-249-393-11	CARBON	10	5%	1/4W F
R314	1-249-425-11	CARBON	4.7K	5%	1/4W F
R315	1-247-863-91	CARBON	22K	5%	1/4W
R319	1-249-425-11	CARBON	4.7K	5%	1/4W F
R341	1-249-437-11	CARBON	47K	5%	1/4W
R342	1-249-419-11	CARBON	1.5K	5%	1/4W F
R343	1-249-415-11	CARBON	680	5%	1/4W F
R344	1-247-815-91	CARBON	220	5%	1/4W
R345	1-247-815-91	CARBON	220	5%	1/4W
R346	1-249-421-11	CARBON	2.2K	5%	1/4W F
R347	1-247-807-31	CARBON	100	5%	1/4W
R348	1-249-421-11	CARBON	2.2K	5%	1/4W F
R349	1-249-414-11	CARBON	560	5%	1/4W F
R350	1-249-393-11	CARBON	10	5%	1/4W F
R401	1-247-895-91	CARBON	470K	5%	1/4W
R402	1-247-903-00	CARBON	1M	5%	1/4W
R404	1-249-421-11	CARBON	2.2K	5%	1/4W F
R407	1-249-441-11	CARBON	100K	5%	1/4W
R411	1-249-429-11	CARBON	10K	5%	1/4W
R412	1-247-895-91	CARBON	470K	5%	1/4W
R413	1-249-429-11	CARBON	10K	5%	1/4W
R414	1-247-863-91	CARBON	22K	5%	1/4W
R415	1-249-425-11	CARBON	4.7K	5%	1/4W F
R701	1-249-440-11	CARBON	82K	5%	1/4W
R702	1-249-439-11	CARBON	68K	5%	1/4W
R703	1-249-439-11	CARBON	68K	5%	1/4W
R704	1-249-439-11	CARBON	68K	5%	1/4W
R705	1-249-439-11	CARBON	68K	5%	1/4W
R706	1-249-440-11	CARBON	82K	5%	1/4W
R707	1-247-887-00	CARBON	220K	5%	1/4W
R709	1-247-883-00	CARBON	150K	5%	1/4W
R710	1-247-885-00	CARBON	180K	5%	1/4W
R711	1-247-883-00	CARBON	150K	5%	1/4W
R712	1-247-891-00	CARBON	330K	5%	1/4W
R714	1-249-429-11	CARBON	10K	5%	1/4W
R715	1-247-856-00	CARBON	11K	5%	1/4W
R716	1-249-429-11	CARBON	10K	5%	1/4W
R717	1-247-891-00	CARBON	330K	5%	1/4W
R718	1-247-899-11	CARBON	680K	5%	1/4W
R719	1-249-393-11	CARBON	10	5%	1/4W F
R720	1-247-858-11	CARBON	13K	5%	1/4W
R721	1-247-863-91	CARBON	22K	5%	1/4W
R722	1-249-441-11	CARBON	100K	5%	1/4W
R723	1-247-896-11	CARBON	510K	5%	1/4W
R724	1-249-439-11	CARBON	68K	5%	1/4W
R725	1-247-883-00	CARBON	150K	5%	1/4W
R726	1-247-876-11	CARBON	75K	5%	1/4W
R727	1-249-437-11	CARBON	47K	5%	1/4W
R728	1-249-441-11	CARBON	100K	5%	1/4W
R729	1-249-430-11	CARBON	12K	5%	1/4W
R730	1-249-435-11	CARBON	33K	5%	1/4W
R731	1-247-863-91	CARBON	22K	5%	1/4W
R734	1-247-843-11	CARBON	3.3K	5%	1/4W
R735	1-249-427-11	CARBON	6.8K	5%	1/4W F
R736	1-247-863-91	CARBON	22K	5%	1/4W
R737	1-247-843-11	CARBON	3.3K	5%	1/4W
R738	1-249-435-11	CARBON	33K	5%	1/4W
R798	1-249-428-11	CARBON	8.2K	5%	1/4W F
R801	1-249-429-11	CARBON	10K	5%	1/4W
R803	1-249-430-11	CARBON	12K	5%	1/4W

Ref. No.	Part No.	Description			Remarks
R804	1-249-430-11	CARBON	12K	5%	1/4W
R805	1-249-430-11	CARBON	12K	5%	1/4W
R806	1-249-430-11	CARBON	12K	5%	1/4W
R807	1-249-430-11	CARBON	12K	5%	1/4W
R808	1-249-430-11	CARBON	12K	5%	1/4W
R809	1-249-431-11	CARBON	15K	5%	1/4W
R810	1-249-431-11	CARBON	15K	5%	1/4W
R811	1-249-431-11	CARBON	15K	5%	1/4W
R820	1-249-417-11	CARBON	1K	5%	1/4W F
R821	1-247-807-31	CARBON	100	5%	1/4W
R822	1-247-807-31	CARBON	100	5%	1/4W
R823	1-247-807-31	CARBON	100	5%	1/4W
R828	1-247-815-91	CARBON	220	5%	1/4W
R843	1-249-437-11	CARBON	47K	5%	1/4W
R845	1-247-843-11	CARBON	3.3K	5%	1/4W
R846	1-249-417-11	CARBON	1K	5%	1/4W F
R847	1-249-429-11	CARBON	10K	5%	1/4W
R852	1-247-903-00	CARBON	1M	5%	1/4W
R853	1-247-887-00	CARBON	220K	5%	1/4W
R855	1-249-429-11	CARBON	10K	5%	1/4W

< VARIABLE RESISTOR >

RV1	1-228-995-00	RES, ADJ, METAL22K
RV351	1-225-438-11	RES, VAR, CARBON 20K/20K (TONE)

< SWITCH >

S1	1-771-626-11	SWITCH, LEVER SLIDE (BAND)
S351	1-572-299-11	SWITCH, LEVER SLIDE (FUNCTION)

< TRANSFORMER >

T1	1-409-944-11	COIL(DET)
T2	1-416-845-11	COIL(IFT)
T301	1-416-041-11	TRANSFORMER, BIAS OSCILLATION

< VIBRATOR >

X801	1-760-793-11	VIBRATOR, CERAMIC (16.93MHz)

****

*	1-672-776-11	MONO ST BOARD (AEP,CEF,CET)

****

< CONNECTOR >

* CNP1	1-785-654-11	PIN, CONNECTOR(PC BOARD)2P(AEP,CEF,CET)

< SWITCH >

S302	1-771-060-11	SWITCH, SLIDE (AEP,CEF,CET)

****

*	1-672-956-11	POWER BOARD

****

< CAPACITOR >

C901	1-101-005-00	CERAMIC	22000PF	50V
C902	1-101-005-00	CERAMIC	22000PF	50V
C903	1-101-005-00	CERAMIC	22000PF	50V
C904	1-101-005-00	CERAMIC	22000PF	50V

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
* CNP902	1-785-670-11	PIN, CONNECTOR (PC BOARD) 4P	
* CNP903	1-785-655-11	PIN, CONNECTOR (PC BOARD) 3P	
* CNP905	1-564-752-11	PIN, CONNECTOR (WITH LOCK) 3P (E,EA,SP)	
		< DIODE >	
D901	8-719-046-07	DIODE 2A02M	
D902	8-719-046-07	DIODE 2A02M	
D903	8-719-046-07	DIODE 2A02M	
D904	8-719-046-07	DIODE 2A02M	
		< FUSE >	
⚠F901	1-532-389-31	FUSE (0.5A/250V) (E,EA,SP)	
		< FERRITE BEAD >	
FB901	1-410-397-21	FERRITE BEAD INDUCTOR	
		< FUSE HOLDER >	
FH901	1-533-233-31	HOLDER, FUSE	
FH902	1-533-233-31	HOLDER, FUSE	
		< JACK >	
⚠J901	1-526-838-11	INLET, AC 2P	
		< IC LINK >	
⚠PS901	1-533-597-51	LINK, IC5A	
		< RESISTOR >	
⚠R901	1-249-421-11	CARBON 2.2K 5% 1/4W F	
R902	1-249-413-11	CARBON 470 5% 1/4W	
**********			
	1-672-955-11	RECORD SWITCH BOARD	
		**********	
		< CONNECTOR >	
* CNP302	1-785-656-11	PIN, CONNECTOR (PC BOARD) 4P	
		< SWITCH >	
S301	1-762-565-11	SWITCH, SLIDE (REC/PB)	
**********			
*	1-672-960-11	VOLTAGE SELECTION BOARD (E, EA, SP)	
		**********	
⚠S901	1-552-921-00	SWITCH,POWER(VOLTAGE CHANGE) (E, EA, SP)	
**********			

Ref. No.	Part No.	Description	Remarks
*	1-672-959-11	VOLUME BOARD	
		**********	
		< CABLE HOLDER >	
* KH307	1-568-135-21	HOLDER, CABLE 7P	
		< RESISTOR >	
R308	1-249-417-11	CARBON 1K 5% 1/4W F	
		< VARIABLE RESISTOR >	
RV352	1-225-764-11	RES, VAR, CARBON 20K/20K (VOLUME)	
		< SWITCH >	
S355	1-762-950-11	SWITCH, PUSH (1 KEY) (MEGA BASS)	
**********			
		MISCELLANEOUS	
		**********	
59	1-452-899-11	MAGNET	
119	1-777-955-11	WIRE (FLAT TYPE) (16 CORE)	
122	1-773-119-11	WIRE (FLAT TYPE) (19 CORE)	
204	X-3371-667-1	CLUTCH ASSY	
210	X-3373-572-1	REEL ASSY (N), T	
212	X-3372-924-1	FLYWHEEL ASSY	
ANT1	1-501-918-21	ANTENNA, TELESCOPIC	
⚠F901	1-532-389-31	FUSE (0.5A/250V) (E, EA, SP)	
⚠F902	1-532-465-31	FUSE (3.15A/250V) (AEP, CEF, CET)	
HE301	1-543-876-11	HEAD (ERASE)	
HRP301	1-500-454-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	
LCD800	1-801-913-11	DISPLAY PANEL, LIQUID CRYSTAL	
M601	A-3320-446-A	MOTOR ASSY (LOADING) (WITH PULLEY)	
S601	1-762-679-11	SWITCH, LEAF (MD POWER)	
S801	1-692-960-11	SWITCH, PUSH (1 KEY)	
SP301	1-529-341-11	SPEAKER (10cm) (R)	
SP302	1-529-341-11	SPEAKER (10cm) (L)	
⚠T901	1-433-580-11	TRANSFORMER, POWER (AEP, CEF, CET)	
⚠T901	1-433-581-11	TRANSFORMER, POWER (E, EA, SP)	
		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-569-008-21	ADAPTOR, CONVERSION (2P)(E,EA)	
⚠	1-769-412-13	CORD,POWER	
	3-865-316-31	MANUAL, INSTRUCTION (ENGLISH, SPANISH) (E,EA,SP,AEP)	
	3-865-316-41	MANUAL, INSTRUCTION (FRENCH, GERMAN) (EA,SP,AEP)	
	3-865-316-51	MANUAL, INSTRUCTION (DUTCH, PORTUGUESE)(E,AEP)	
	3-865-316-61	MANUAL, INSTRUCTION (ITALIAN)(CEF)	
	3-865-316-71	MANUAL, INSTRUCTION (POLISH,CZECH,HUNGARIAN)(CET)	
	3-865-316-81	MANUAL, INSTRUCTION (SWEDISH,FINNISH)(CET)	
	3-865-326-21	MANUAL, INSTRUCTION (ARABIC)(EA)	
**********			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-647-79	SCREW +BVTP 3 × 10 TYPE2 N-S	
#2	7-685-647-14	SCREW +BVTP 3 × 10 TYPE2 N-S	
#3	7-682-548-04	SCREW +B 3 × 8	
#4	7-621-775-20	SCREW +B 2.6 × 5	
#5	7-621-770-87	SCREW +B 2.6 × 5	
#6	7-685-648-79	SCREW +BVTP 3 × 12 TYPE2 N-S	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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